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Honey Markets

Information from Producing Areas (First half of September).

California Points: Southern California—Orange honey is quiet, with producers generally asking higher prices. Buckwheat-sage is firmly held due to the shortage of supplies. Buyers have been active in the Imperial Valley and perhaps 80 per cent of the alfalfa honey in the Imperial Valley has been sold, with remaining large lots in strong hands. Price changes have been slight. Sales reported by beekeepers in ton lots or more, per lb.: Orange, extra white to water white, 5¼-5½c; some extra white, 5c; white to extra light amber, 4¾-5c, mostly 5c; buckwheat-sage, light amber to extra light amber, 3¾-4c, few sales, 4¼c; water white sage, one lot, 6c; buckwheat, light amber to extra light amber, 4c. Imperial Valley light amber alfalfa, carlot and ton lots, 3⅞c per lb., few higher. Beeswax is in good demand and slightly firmer at 14-16c per lb. delivered Los Angeles, few lower. Central California—Fifth cutting of alfalfa has now commenced in the San Joaquin Valley. The alfalfa honey crop, however, was not heavy. White orange has sold at 4¾-5c; extra white, 5¼c; light amber alfalfa-cotton, 3½-3¾c; few 3⅞-4c; light amber to extra light amber alfalfa, 3¾-4c; amber, 3¼-3½c; lima beans, white, 4¾c; light amber, 3¾-4c. Beeswax is stronger at 14-18c per lb.

Pacific Northwest—West of Cascades: The fireweed flow is nearly over, with more surplus from this source than was anticipated, with excellent quality, though the yield was irregular. Bees are still working on alfalfa, blue curl and second crop red clover. Prospects for the 1934 flow have been aided by recent rains. Bees have more brood than usual at this season of the year. More beekeepers are selling their honey at roadside stands this year than formerly. Sales reported of white fireweed, ton lots 6c per lb.; 60s, 7c; mixed amber, 5½c per lb. East of Cascades—Bees are still working very lightly on rabbit brush, sweet clover and buckwheat. Yields for the season have been spotted, some getting a fair crop and others very little. Sales reported of No. 1 comb at $2.50-3.00; No. 2, $2.00. Few sales small pails extracted, 6c per lb.

Intermountain Region—Inquiries for honey have been numerous and a number of cars of extracted have been sold at around 1c per lb. higher than the market at this season last year, with many beekeepers holding for higher prices. Comb honey is in very light supply, and substantially higher than last year. Several carlots of white to extra white sweet clover reported sold at 4¾ per lb.; 1 car, 4.3c; ton lots and less mostly 4¼-5c per lb.; small pails, 5½-8½c per lb.; light amber 60's and small pails, 5c; few higher.

Arizona—Colonies have ample stores for winter, but unless a fall flow from cotton is secured there will be little late honey extracted in the Yuma Valley. Rain has fallen in the Salt River Valley and the southeastern portion of the state, which may result in a fall flow. Mesquite honey reported sold at 4 1-6-5c per lb., according to color, with many beekeepers holding mesquite for higher prices. Light amber alfalfa has moved at 3¾c per lb.; light amber to white mesquite and catsclaw, $4.50-5.00 per case of 120 pounds, with one carlot sold at 4 1-6c per lb.

Southwestern States—Southcentral and southwestern Texas—Considerable honey is being traded to the stores for supplies. Sales reported of small pails extracted at 6c per lb., few higher; 60's, 5-7c; bulk comb, small pails, 7½c per lb.; beeswax, 15c per lb. Northeast Texas—Surplus yields light, reported ranging 30-40 pounds. Some sales reported, containers furnished, extracted 4c per lb.; bulk comb, 5c per lb. Brisk sales reported of small pails of bulk comb at 8½-10c per lb. with extracted moving quietly at 8c. Arkansas—A good flow has started from Spanish needle, following the recent helpful rains. Most colonies have plenty of young bees and sufficient honey for winter. Demand for honey is good and most of the crop has been sold. Sales reported of small pails extracted at 7½-8c per lb.; bulk comb, glass jars, 17c per lb.

Plains Area: Red River Valley of North Dakota and Minnesota—The honey flow is practically over except that a little nectar is still coming in from the northern end of the Valley. Colonies are in better condition than at this time last year. Carlots of white sweet clover are being sold at 5c per lb., with some beekeepers holding for a higher price. South Dakota—Rain has fallen over most of the state. Many clover fields are again yielding nectar, and if frost does not prevent, fall flowers will produce a fair flow. Most colonies are well filled with brood and are heavy with honey. Few sales reported extracted white sweet clover small pails 6½-7c per lb.; large lot in 60s, 4.4c per lb.; fancy white comb, $3.60 with many beekeepers holding for higher prices. Iowa.—A light flow is still on from sweet clover and Hubam, and fall flowers may furnish some nectar following recent rainfall, which also helped the clover prospects for next year. The quality of this year's crop is reported good and the yield from 90 to 130 per cent of normal. Carlots are being sold earlier than usual this year, with several cars of white extracted reported moving at 4.55c, 4.6c and 5c, mostly 5c per lb. Other extracted sold at 5c in 60s, 6c in small pails, and with 6c per lb. offered for water white chunk honey. Beeswax, 14c per lb. in cash, 16c in trade. Kansas, Nebraska and Missouri—The fall flow is irregular, but becoming more abundant, especially from smartweed, following the recent heavy rains. The condition of plants for next year has also improved. Demand for honey is improving and the price tendency appears upward. One car white extracted reported sold at 5c per lb.; ton lots, 4½-5½c, with many holding for 5¼-6c; small pails, 7-7½c per lb.; few up to 10c. No. 1 white comb has moved at $2.00-2.75 per case, few $3.25. Beeswax, 14-15c per lb. cash, 16c in trade. The flow has been very irregular, ranging from 50 to 125 lbs. within a 50-mile radius and with occasional beekeepers reporting up to 200 lbs. surplus.

East Central and North Central States—Michigan, Minnesota and Wisconsin—Bees are working on goldenrod and aster, and next year's clover plants have been greatly improved by the rainfall. Irregular moisture conditions during the season have made the crop very spotted, some beekeepers getting a normal crop while others a few miles away reported almost a failure. Generally, however, the yield has been fair to good. The market for honey has been increasing, with demand from a distance the greatest on record and with many beekeepers shipping most of their honey outside of their states. Comb honey is getting scarce, with many of the larger lots already purchased. The wide range at which honey is selling is shown by the fact that carlots of white extracted were reported sold at 4.65c, 5c, 5¼c and 6c per lb. Ton lots have moved at 4-6½c, 60s, 6-8c; glass jars, 9-15c per lb. No. 1 white comb reported sold at $2.40-2.60 per case, few higher. Beeswax, 15-20c per lb. Ohio, Indiana and Illinois—Prices have advanced but many beekeepers continue to hold, anticipating a still further advance. Demand has been good and many beekeepers have already disposed of most of their crop. The color and flavor of the comb honey are irregular. Most extracted reported of good flavor, though the color in many cases is darker than usual. Sales reported of large lots white extracted at 5.7-7½c; small pails, 8-9c; light amber to amber, large lots, 5-6c; small pails light amber, 7½c. No. 1 and fancy comb reported sold at $2.40-3.60 per case; No. 2, $2.20-2.75 per case. Beeswax, 14-18c per lb. cash, up to 20c per lb. in trade.

Northeastern States—New York—The crop varies greatly in yards 15 to 20 miles apart.

The section near Lake Ontario secured little surplus honey, but the southern part fared better, with reports received ranging 30 to 65 per cent of normal. Honey seems to be moving quite freely and at the present rate the bulk of it will be sold during the next two months. Beekeepers are steadily advancing their prices and some are receiving fully 2c per lb. more than they did last year. This year's crop is lighter in color than that of last year as well as lighter in yield. Large lot sales of white extracted reported at 6-7c per lb.; some 8c; and other beekeepers holding for 10c; 60s, 6½-9c; small pails, 8-9c; light amber clover, 5½c; mixed clover and fall flowers, 5¼c; buckwheat, 60s or more, 5-6c; small pails, 7c per lb. No. 1 white comb moved at $2.60-3.60 per case.

Summary.—Most of the drouth areas have received sufficient rainfall recently to improve the fall crop and to help the honey plants for next year. Some of the mountain states, however, are still the driest in years. Most colonies are in good condition, with an ample supply of young bees, and due to the increase in the fall flow, feeding for winter will be less than was anticipated a few weeks ago. In some sections of the northeastern and east central states the fall flow is heavier than the light main crop. Taking the country as a whole, this year's honey crop is among the lightest in many years and exceptionally irregular. One beekeeper may report a crop failure, while another beekeeper 20 miles away has secured a surplus of 100 pounds. Inquiry for honey reported the best in years; inquiry from a distance reported exceptionally active. Market prices are on the upgrade and many beekeepers are already selling at prices from one to two cents per pound higher than they received last year, though most beekeepers have probably not received so much of a premium. Comb honey is especially scarce this year and has been bought rapidly. Price ranges are wide, with carlot sales of white extracted in the same area and for relatively the same grade of honey reported ranging nearly 30 per cent. Beeswax is much firmer and candle manufacturers are said to be buying it more actively.

Monthly Report of Honey Producers

Early in September we sent the following questions to honey producers: 1. What is the final average yield per colony to date this season in your locality of (a) extracted honey? (b) comb honey? Give answer in pounds. 2. How does this compare with the average yield for your locality? Give answer in per cent. 3. At what price has honey been sold or contracted for, if any, in large lots (carload or less) in your locality during the past month for (a) extracted honey, per pound? (b) comb honey, fancy and No. 1, per case? 4. What are prices when sold to grocers in case lots of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. packages? (b) Comb honey, fancy and No. 1, per case? 5. What is the retail price to consumers in your locality for (a) extracted honey in 5-lb. pails, or other packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per section? 6. How is honey now moving on the market in your locality? Give answer in one word as slow, fair or rapid. 7. What is the condition of the colonies for winter in your locality compared with normal, considering the number and age of bees and the supply of stores. Give answer in per cent. The answers returned are tabulated as follows:

State. Name.	Av. Yield. Ex.	Comb.	Aver. Yld.	Large Lots. Ex.	Comb.	To Grocers. Ex.	Comb.	Retail Price. Ex.	Comb.	Move-ment.	Cond. col.
Ala. (H. C. Short)	..	..	..	..	..	..	..	.50	..	Fair	100
Ala. (J. M. Cutts)	..	..	..	..	..	.45	..	.55	..	Fair	100
Ala. (J. C. Dickman)	40	..	80	..	..	.30	..	.40	..	Slow	80
B. C. (A. W. Finlay)	80	..	40	.10	..	.70	..	.85	..	Fair	100
Calif. (L. L. Andrews)	30	..	40	.05½	..	..	..	.63	.15	Fair	75
Colo. (O. E. Adcock)	90	60	100	..	..	.38	2.75	.47	.13	Slow	100
Conn. (A. Latham)	20	..	23	..	..	..	5.00	1.00	.30	Fair	60
Fla. (C. C. Cook)	100	..	200	.04	..	.32	..	.40	..	Slow	100
Fla. (H. Hewitt)	125	..	200	..	..	.45	..	.60	..	Slow	100
Ga. (J. J. Wilder)	30	20	50	.04½	..	.35	..	.50	..	Fair	100
Idaho (R. R. Isbell)	95	50	90	.05½	2.40	..	2.75	.43	.15	Fair	110
Ill. (A. L. Kildow)	60	50	75	..	..	..	..	.50	..	Slow	100
Ind. (Jay Smith)	50	30	60	..	..	.50	3.00	.65	.15	Slow	125
Ind. (T. C. Johnson)	25	15	20	..	..	.50	3.00	.65	.20	Slow	90
Ind. (E. S. Miller)	75	50	75	..	..	.45	3.00	.60	.15	Fair	100
Iowa. (E. G. Brown)	190	..	125	.04	..	.35	..	.50	.15	Fair	100
La. (E. C. Davis)	50	..	50	.04	..	.30	..	.40	..	Slow	100
Me. (O. B. Griffin)	..	20	55	..	..	..	5.50	..	.30	Slow	100
Md. (S. G. Crocker, Jr.)	25	25	50	..	..	.60	3.00	.75	.25	Slow	75
Minn. (F. W. Ray)	175	..	110	.05	..	37½	..	.50	..	Fair	100
Minn. (B. L. Morehouse)	90	60	66	..	..	.45	..	.60	.15	Rapid	95
Mich. (I. D. Bartlett)	135	..	135	.06½	..	.45	..	.55	..	Fair	75
Mich. (L. S. Griggs)	140	..	90	..	..	.40	..	..	..	Slow	100
Mich. (F. Markham)	120	80	80	.06	..	.38	..	.50	.15	Fair	90
Mich. (E. D. Townsend)	..	..	..	.06	..	..	..	..	..	Rapid	90
Nev. (Geo. G. Schweis)	80	40	50	.05	..	.40	2.25	.50	.15	Fair	100
N. Y. (Adams & Myers)	60	..	..	.07½	..	.45	..	.75	.20	Good	..
N. Y. (G. B. Howe)	25	..	20	..	..	..	3.50	.55	.17	Fair	95
N. Y. (F. W. Lesser)	60	20	60	.07	3.00	.45	3.60	.60	.20	Fair	100
N. Y. (N. L. Stevens)	90	..	70	.06	..	..	..	.50	.15	Fair	100
N. C. (W. J. Martin)	100	..	100	.04	..	.55	..	.75	.15	Slow	100
N. D. (Chas. Engle)	75	..	50	.05½	2.50	.40	3.00	.50	.15	Fair	90
Ohio. (F. Leininger)	30	..	30	.06	3.75	..	..	..	..	Fair	100
Ohio. (R. D. Hiatt)	70	40	60	..	..	.57	4.50	.75	.25	Fair	90
Ohio. (J. F. Moore)	10	0	0	..	..	.50	3.00	.65	.17	Fair	50
Okla. (C. F. Stiles)	40	..	90	..	..	.45	..	.60	.15	Fair	90
Pa. (H. Beaver)	..	..	..	..	..	.50	3.00	.60	.17	Fair	100
Pa. (D. C. Gilham)	45	32	75	..	..	.75	4.50	1.00	.27	Slow	80
S. C. (E. S. Prevost)	..	..	..	..	..	.45	..	.63	..	Slow	90
Tenn. (J. M. Buchanan)	60	40	100	..	..	..	..	.75	.20	Slow	100
Texas. (J. N. Mays)	24	..	25	.05	..	.35	..	..	..	Fair	90
Va. (T. C. Asher)	50	40	60	..	..	.50	3.00	.70	.18	Fair	95
Wash. (G. W. B. Saxton)	15	..	20	..	..	.38	..	.45	..	Fair	75
Wis. (N. E. France)	50	30	90	..	..	..	..	.45	.15	Fair	90
Wis. (James Gwin)	75	..	75	.05½	2.75	.40	..	.55	.17	Fair	95

Now Is the Time to Buy

and Save Money

Prices on a large number of items have already gone up. Here are some bargains on slightly shop-worn bee supplies. Prices are good only as long as stocks last. All goods are for cash and F. O. B. shipping point.

Send orders for the following to

A. I. Root Co. of Indianapolis

121 N. Alabama St., Indianapolis, Ind.

42—Alexander feeders, 20c each.
5—Alexander feeders, Buckeye loose bottom hive, 20c each.
4—Division board feeders, nailed, 20c each.
300—Jumbo brood frames, $3.36 per 100.
4 KD—22552—Plain section supers, 4x5x 1⅞, the lot, $4.00.
4 KD—22532—Plain Section supers, 4¼x 4¼x1⅛, the lot, $3.20.
These goods are all worth the money.

Send orders for the following to

A. I. Root Co. of Philadelphia

10 Vine St., Philadelphia, Pa.

3—489, Root's wax presses, single, $14.50 each.
20 pairs medium drill bee gloves, without fingers, 40c each.
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7—215, Sets of 5 wooden letters for honey sign, nailed only, 80c each.
1—"How to Keep Bees," 75c each.
10—Packed rims, shallow depth, nailed and painted, $1.50 each.
10—Packed rims, full depth, nailed and painted, $2.00 each.
2—Swarm catchers, old style, without poles, 75c each.
1500—Plain comb-honey cartons for 4x5x 1⅞, 50c hundred.
2—254, Veil, of mosquito bar entirely, 25c each.
500—Old-style window cartons, 4¼x1⅛, $3.20.
25—Chaff division boards, 15c each.
800—Old-style small queen mailing cages, 20c for ten, $1.50 per hundred.
40—Long-distance queen-mailing cages, 25c for ten, $2.00 per hundred.

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200—8-fr. Hive Bodies, without frames, per 5, $2.15.
300—8-fr. Beeway Section Supers, empty, per 5, $1.43.
300—10-fr. Beeway Section Super, empty, per 5, $1.48.
200—8-fr. Wood Hive Covers, per 5, $1.70.
100—10-fr. Wood Hive Covers, per 5, $1.95.
3000—Shallow Extracting Frames, per 100, $2.50.
5—Woodman Section Fixers, each, 90c.
2—4-fr. Buckeye Power Extractors, 9⅝" pockets, $59.50.
1—4-fr. Buckeye Power Extractors,, 12½" pockets, each, $79.50.

Send orders for the following to

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400—Root standard eight-frame hive-bodies, $60.00 per 100.
50—Root standard eight-frame shallow supers, $20.00.

F. O. B. New Orleans, La.

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Gleanings in Bee Culture
OCTOBER, 1933

Wintering Diseased Colonies

Since apiary inspection in most states has been greatly curtailed during the past season, beekeepers in localities where American foulbrood is present need to be alert to prevent any diseased colonies going into winter, if at all possible. The elimination of one diseased colony now may prevent the spread of the disease to a dozen or more in the spring. If it were possible to find and eliminate all diseased colonies in the neighborhood now, there would be little if any need for inspection next spring. Often, by a little co-operation among neighboring beekeepers, sources of infection in the locality can be discovered and destroyed.

Codes for Beekeepers

In accordance with the provisions of the Agricultural Adjustment Act, a tentative marketing agreement for shippers of package bees and queens has been prepared, and shippers are being asked to give it careful consideration. At a meeting in New Orleans of shippers from several southern states on July 18, a preliminary code of ethics was drawn up designed to place the package and queen industry on a sound basis. Later, Mr. Thomas Atchinson, State Apiary Inspector of Alabama, and Mr. W. E. Harrell, also of Alabama, went to Washington to confer with officials in the Agricultural Adjustment Administration, with the result that the document was re-written. In doing so, an attempt was made to incorporate the wishes of California shippers, who were not represented at the New Orleans meeting.

After all interested parties have had an opportunity to study the tentative marketing agreement and any needed changes have been made, it is planned to submit it to the Agricultural Adjustment Administration with an application for a formal hearing at Washington. This hearing will be open to the public so that all groups and individuals will be given an opportunity to be heard. Copies of the tentative agreement may be obtained from Thomas Atchinson, Department of Agriculture, Montgomery, Ala., for southern shippers, and from Dr. J. E. Eckert, Secretary California Beekeepers' Association, Davis, Calif., for California shippers.

On September 16, a meeting of honey packers was called at Chicago to formulate a code for honey packers intended to eliminate some of their difficulties, which, they point out, has resulted in their operating at a loss during the past several years. An association was organized to be known as Middle States Honey Packers' Association, with Clifford F. Muth of Cincinnati, as secretary. A committee was appointed to prepare a tentative code to be presented to packers in the East and in the West. The association adopted standard grades for honey in accordance with a bill recently passed by Congress.

Mr. James Gwin, president of the American Honey Producers' League, Madison, Wisconsin, has issued a call for a meeting of honey producers at St. Claire Hotel in Chicago, on October 13-14, for the purpose of formulating a code of fair trade practices and making plans for a marketing agreement as to wholesale and retail prices of honey. Mr. Gwin is hoping that various sections of the country will be represented at this meeting.

Beekeepers Like to Talk Shop

There has been a tendency in recent years to avoid topics most directly and intimately connected with the care of the bees when arranging programs for winter meetings of beekeepers. In some cases, program makers have gone far afield in the selection of subjects. This is not to be wondered at when one realizes that a study of bees and their care leads one to the threshhold of botany, zoology, physiology, physics, chemistry, animal behavior and many other sciences. Perhaps this is what makes beekeeping so fascinating.

However, when beekeepers get together they want to talk about bees, and their care. At several meetings last winter it was quite apparent that the interest of those present rose and fell as the subject

of discussion approached the direct care of the bees or wandered in more remote fields. One of the best attended meetings last winter was one in which the program makers decided to have an old-fashioned beekeepers' meeting—one in which beekeepers could talk shop to their heart's content. The result was a large attendance and keen interest throughout the discussions.

After all, beekeepers like to talk about bees, and the more live beekeeping subjects the program makers can put into their programs, the more interesting the meetings will be. This may explain why the summer meetings held in the apiaries and honey-houses of successful beekeepers, have increased in popularity during recent years while the winter meetings have decreased in popularity. A meeting held in an apiary or honey-house can't very well be a dry affair, since it affords an excellent opportunity to talk shop.

National Honey Week

The American Honey Institute is making elaborate preparations for National Honey Week, November 13 to 18. The Institute has been remarkably successful in previous years in inducing food companies and equipment companies to help promote honey during National Honey Week, and is now working along these lines for this year. The Kellogg Company has already agreed to co-operate and has its artist now working on a design for a honey poster and a honey leaflet, both to be available for beekeepers to use during National Honey Week. The Institute is asking the trade publications to publish news items about honey and National Honey Week in order that dealers throughout the country shall be informed in time to make proper preparations. Radio talks are being arranged through home economics departments having radio outlets. No doubt some of the larger food companies can again be induced to co-operate by mentioning honey in their regular radio advertising as several of them did last year.

However, the Institute can only supply the inspiration and advice. To achieve the success which National Honey Week deserves, greater co-operation on the part of beekeepers than heretofore is necessary. To this end, we suggest a careful reading of Mrs. Jensen's article beginning on page 626 of this issue in which she offers many helpful suggestions along this line. If at least one beekeeper in every community would carry out completely her suggestions, National Honey Week would certainly be a great success this year.

The Institute is having a folder-type leaflet printed in colors especially for National Honey Week and has a number of helps and suggestions which can be had by writing direct to American Honey Institute, 417 North Few Street, Madison, Wisconsin.

Conditions Greatly Improved

In many localities, the condition of both honey plants and colonies of bees are greatly improved over those existing a month ago. In much of the clover region, recent rains have revived the clover, thus greatly improving the prospects for next year, and in many cases the bees have been able to make up their shortage in stores for winter from fall flowers. In fact, in many cases, a considerable amount of surplus honey was stored during September from buckwheat and fall flowers. In some cases, beekeepers are now worrying about the queens being badly crowded by fall honey resulting in brood rearing being greatly curtailed.

However, it must be a pleasure to worry about curtailed brood rearing in September because of too much honey in the brood-chamber as compared with worrying about the bees being short of stores for winter. In many cases, a honey-bound brood-chamber in September results in the expansion of brood rearing in late September and early October, as the honey flow slows down and honey is consumed. In such cases, the colonies should go into winter well supplied with young bees.

If this expansion in brood rearing fails to materialize, colonies will go into winter with a low percentage of young bees. In such cases, winter brood rearing often occurs, especially if the old bees die off rapidly during the early part of the winter. When conditions are favorable for winter brood rearing, such colonies are often able to pull through in fairly good condition, provided the stores are of good quality.

Whatever the outcome, most beekeepers would greatly prefer having brood rearing restricted in the fall by too much honey in the brood-chamber, to having

brood rearing restricted by a shortage of honey together with the prospects of having to feed large quantities of sugar syrup for winter stores.

Condition of Bees for Winter

To a large extent it is already determined how well or how poorly the bees shall survive the coming winter. This is especially true in the North, where, in most cases, brood rearing will soon be entirely suspended for winter. It is now too late in most northern localities to make a good colony out of one that failed to rear enough young bees for winter because the queen was too old, or because the colony was short of stores in August and September when most of the bees are reared which survive the winter and retain enough vitality to reproduce their numbers in the spring. To be effective such defects should have been corrected at least six or eight weeks ago.

However, much can be done even in October to improve the condition of the colonies for winter, although to do so may result in a much smaller number of colonies. By uniting weak colonies—that is, colonies weak in number of young bees—and supplying stores to those which do not have enough, it is possible greatly to improve the chances of good wintering. Often colonies of bees are packed for winter or put into the bee cellar before correcting defects in strength or in the amount of stores, with the hope that through some miracle they may pull through. Usually they do not.

Another method of wintering weak colonies is that of cutting down the winter chamber to five or six frames, then filling the vacant space with chaff division-boards or tight-fitting division-boards with the space behind them packed. It is surprising what small colonies can be wintered in this way; and often these little colonies, if supplied with an abundance of stores in the spring, will build up to good strength for the honey flow. But this procedure involves too much labor when producing honey in a commercial way.

The smaller the colony the greater the need for good stores in the North where bees may be confined for a long period of time without a cleansing flight. Strong colonies appear to be able to pull through a northern winter on poor stores with much less damage than usually occurs in weak colonies.

Waterproof Paper Winter Cases

Black waterproof paper impregnated either with tar or asphalt is being used more and more to hold the packing material in place on single-walled hives for winter in the North. The asphalt paper is usually preferred because it is easier to handle without breaking, especially if the weather is cool. By careful handling, the single-ply paper can be used at a great saving in expense. By using a form hooked together at the corners to hold the paper in proper position while the packing material is being put in place and packing the corners a little tighter than the sides and ends, a neat job can be done. This is especially true when using forest leaves for packing. In making up the winter cases, the editor likes to cement the ends of the paper together with hot asphalt.

The winter entrance is provided by a ⅞" piece of wood cut the proper width to come out flush with the front end of the bottom-board. This is nailed in place lightly on top of the side rails, thus providing a tunnel ⅞" deep by the full width of the hive. When the rim of paper is set around the hive, one lath is tacked in place with its upper edge flush with the upper surface of the projecting bottom-board and another with its lower edge flush with the under surface of the ⅞" strip which forms the roof of the tunnel. These laths hold the paper in place so that none of the packing material can get into the entrance. An entrance of the size desired is cut through the paper.

The lower edge of the paper forming the rim of the winter case can rest directly on the ground, thus making it unnecessary to provide a bottom. When dry forest leaves are used for packing material, there appears to be no trouble from packing absorbing moisture from the earth.

The cover, which is made of a piece of the same waterproof paper with the edges folded down to telescope over the sides of the winter case, can be held in place with binder twine. A piece of binder twine can be tied around the winter case in a horizontal position and drawn tight enough to form a good anchorage for pieces of twine that are looped over the cover to hold it in place. In a windy location, it is important to fold the corners of the cover neatly as in wrapping a package and tying it in place in such a manner that the wind can not get under it. All packing should be done this month while hives and packing material are dry.

The Bees Native to the Soviet Union

Dr. E. F. Phillips

Intensive Study of Caucasian Bees in Comparison with Bees in Other Regions

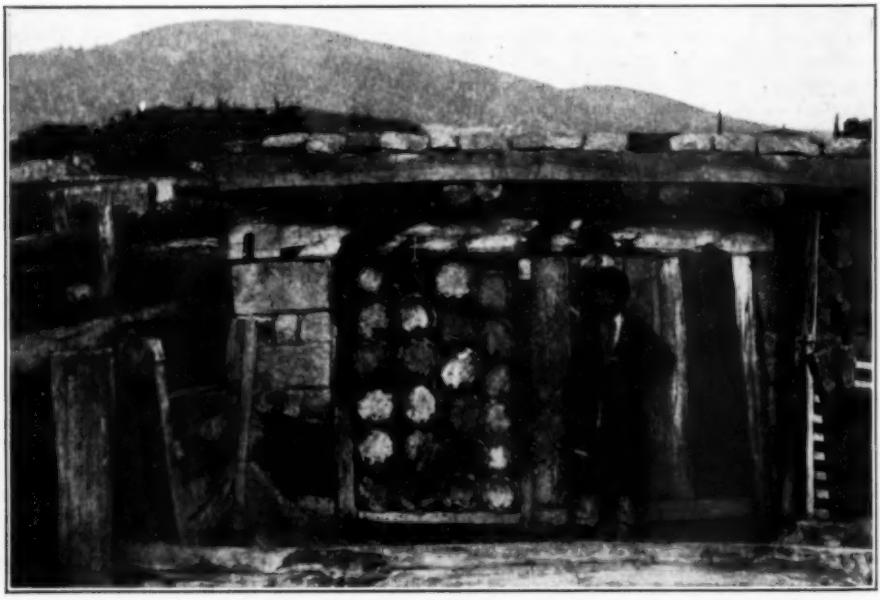
The native bees are nowhere studied more thoroughly and better known than are those of the Soviet Union. The work recently done in this field is well known to investigators but is less well known to beekeepers generally, so a brief summary of the results may be profitable.

Much interest was at one time shown by American beekeepers in length of tongue of bees, but the measurements were made on such a few specimens from each colony that the results were not of much significance. At that time (about 1900) the statistical methods applicable to biology were not well or widely enough known to enable those who made the measurements to avoid serious errors. It was doubtless because of these facts that these discussions ceased.

Variation in Length of Tongue in Different Regions

In Russia there was an early interest in measurements of bees, but here also the early work was inadequate and unimportant. In 1916 Chochlov made measurements of tongues of 1899 individual bees from six races, using bees from three colonies in each case, from which he concluded that the different bee races have specific tongue lengths. In 1924 A. S. Michailov began his work on this subject which he has since continued, although more recently he has given most of his attention to bee-breeding problems. Michailov measured tongues of bees from two other places in the Soviet Union and found that tongue length of native bees change from north to south in that country, bees with the longest tongues being found in the south.

This work caused Alpatov also to take up the problem in 1924 and he worked up all the data then available with proper statistical methods. Alpatov began a systematic collection of bees from all parts of the Union, including the Caucasus and in 1925 the Conference of Apicultural Experiment Stations held in Moscow assign-



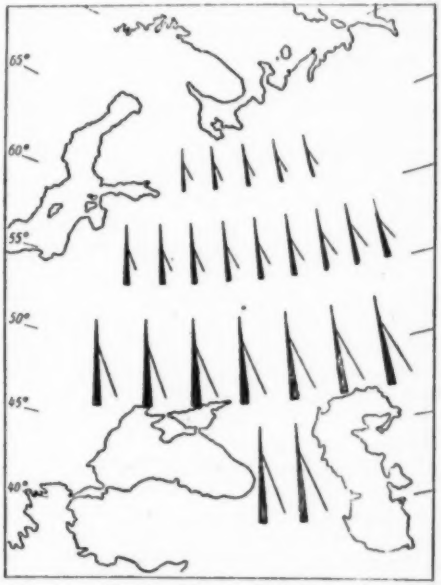
A primitive Caucasian apiary. This arrangement of hives is distinctly oriental.

ed to Alpatov's laboratory the task of studying geographical distribution in the honeybees of the Soviet Union. This was the beginning of a vast amount of research under Alpatov's direction, and the results are most interesting.

It is, of course, to be expected that different colonies of bees native to any single region will show lack of similarity in average tongue length, and Alpatov found in 1927 that colony variations are regularly less than those of the entire bee population of a region. In some cases correlations between the same organs differed in different colonies in a region. There was, however, still found a continuous change in average tongue lengths

European Russia and the Caucasus showing the average tongue length of bees from different localities. The figures are in millimeters. From Alpatov.

throughout the Soviet Union, even after bees from many regions had been included in the work. In the accompanying map will be found the locations of the places from which bees have been studied, and for each location is given the average length of tongue for the bees of that region. These measurements are given in millimeters and are directly comparable one with the other. It will be noted that in some instances the so-called probable error is given, this figure following the average and being preceded by a plus and minus sign. These cases are those in which bees studied were from at least five separate colonies. The considerable difference in tongue length is shown even better in the second map in which the vertical bars with broader bases represent average tongue length. The lines at the right side



European Russia. The vertical bar with broad base corresponds to tongue length and the small bar at the side indicates the proportion of leg length to body size. From Alpatov.

of the tongue-length line represent the proportion of length of leg to body size, to be discussed later.

This steady increase in length of tongue to the South is biologically important, but it is not yet entirely clear what explanation should be given to the facts. One assumption is that, in the Soviet Union as elsewhere in the northern hemisphere, nectar secretion of any plant species is on the average more abundant in the northern part of the geographical range of the plant, necessitating a shorter length of tongue in the North to enable bees to gather the available supplies of nectar. Conversely, since nectar is less abundant southward, it is assumed that it takes a longer tongue to get what nectar there is. It need not be emphasized that this explanation is speculative and is not to be taken too seriously.

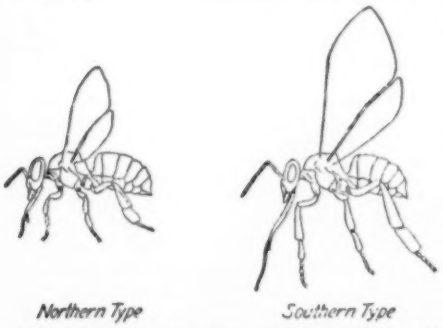
Bees With Longest Tongues Visit Flowers With Deeper Corollas

A. F. Gubin, whose work on various pollination problems is mentioned elsewhere, made a study of the average tongue length of an apiary at Tula and

then determined the average tongue length of those bees from the same apiary caught actually working on red clover. He found that there is selection by the bees themselves, since those with longer tongues visit the red clover flowers for nectar. Caucasian bees transported to the Tula Station showed an average tongue length of 6.60 mm., these colonies being located in an apiary of Middle Russian bees, so that all the bees were free to visit whatever plants they wished. He found that the average tongue length of the bees working on red clover was 6.24 mm., those working on white clover, 6.12 mm., those on vetch, 6.52 mm., and those on fireweed, 6.24 mm. The bees with longest tongues tend to visit flowers with deeper corollas, while the short tongued bees predominate on the shorter corollas. Doubtless it was chiefly the Caucasian bees which were visiting red clover, vetch and fireweed, while the Middle Russian bees predominated on white clover.

Variations in Size of Body

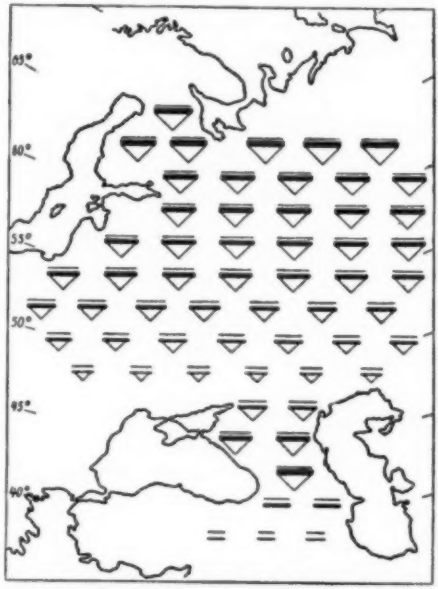
When it was found that tongue length varies as previously indicated, the next question which presented itself was regarding other variations which occur in



Schematic representation of the northern and southern types of Russian bees.

what might be termed body size, as represented in measurement of other parts such as different parts of the abdomen. It was found for body size that exactly the reverse situation occurs, for the smallest bees are found in the South and the largest in the North. If then one considers tongue length in relation to body size, it is seen that these two factors vary inversely. Wing and leg length vary with tongue length. Alpatov has indicated this diagramatically in the accompanying figure, and has also presented a diagramatic map of European Russia which indicates the relationship of body size, coloration of abdominal segments, and relative size of wax gland surfaces, which is here copied.

In a discussion of these measurements from the standpoint of trying to indicate the nature of the bees of the Soviet Union, it would be out of place to discuss all features of the statistical work done



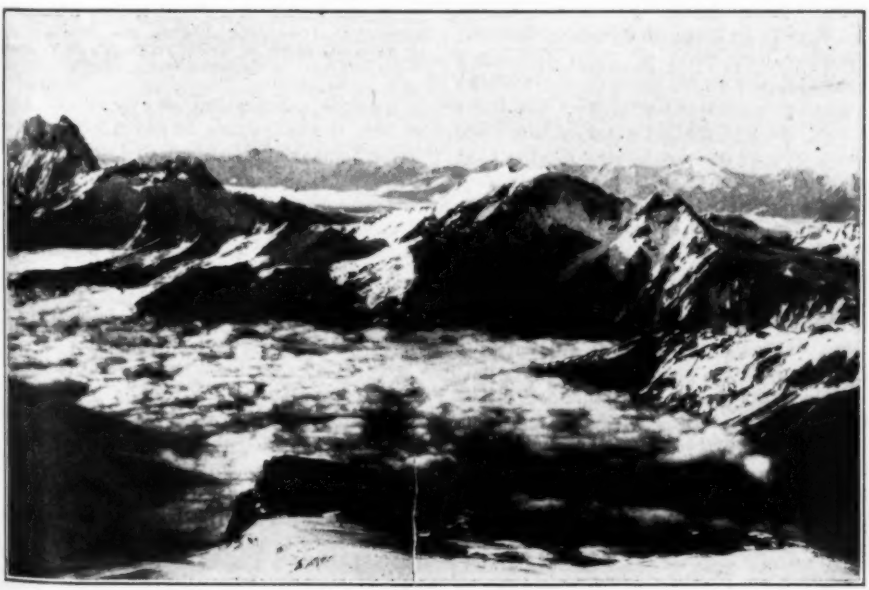
Diagramatic map of European Russia. The size of each group of signs represents the size of the bees. The width of the middle bar corresponds to the color of the abdomen. The V-shaped sign gives the relative size of wax-gland surfaces. The variation in the Caucasus is not exactly correct for lack of space.

there. It may, however, be stated that Michailov found differences in bees emerging at different times of the year from a single colony in tongue length, wing length, wing width and number of hooks on the hind wings, the sizes of these parts usually increasing with the advance of the season. He also measured bees from old combs and newly drawn comb foundation and found the bees from old combs somewhat smaller. When sealed brood was removed from the hive and kept at a constant but lower temperature, there was some reduction in the size of the bees. Brood fed by nurse bees of different ages also shows differences in size of bees. These facts are here mentioned merely to indicate the complexity of such statistical problems and the many questions which can best be solved by such methods.

The bees of the Caucasus Mountains are found to have the longest tongues of any bees so far measured. Interest in Caucasian bees has been rather sporadic in the United States, and while some beekeepers have highly recommended them, the majority have not had any experience with them. There is nevertheless a wide interest in them, and many beekeepers think that some day they would like to try them. These bees belong to the group of black bees, and this has prevented many from trying them since American beekeepers greatly prefer yellow bees so that they can quickly detect crosses with black bees. Furthermore, Caucasian bees —at least in so far as they have been tried in the United States—use propolis excessively and this characteristic made them especially undesirable when comb-honey production was more general than at present. At any rate American beekeepers want all the information that they can get regarding Caucasian bees.

Unfortunately my visit to the Caucasus Mountains came at a season when it was impossible to get first hand information about the nectar-gathering proclivities of these bees. I can testify that the bees in the mountains are gentle, for we visited apiaries in cool and almost cold weather, and in two apiaries it began to rain while we were handling colonies. The bees showed no resentment when their hives were opened and none of us wore veils. I watched for signs of propolization, but unfortunately all hives had had their spring housecleaning before I could see them. The beekeepers of the Caucasus region admit that their bees gather much propolis. I can also testify to the fact that bees of the North Caucasian Republic, in the flatter country north of the mountains proper, are exceedingly cross and irritable, for in one apiary they drove out our entire party on a warm bright day—as bad a charge of infuriated bees as I ever witnessed.

Extended studies of the bees of the Caucasus Mountains are now being made by members of the staff of the Essentucki Beekeeping Experiment Station. An exploring expedition remains in the mountains most of the time, searching for bees with slightly different characteristics. If anything different is found, or if anything promising appears, at least twenty-five colonies of the bees are sent to Essentucki for detailed study. It may seem strange that the beekeepers near or right in the Caucasus Mountains do not know the bees of the region thoroughly. When one visits these mountains, even to the small extent that was possible for us, it



The Caucasus Mountains above the clouds. The bees live at lower elevations.

at once becomes evident that there are untold numbers of places there so far unexplored by qualified investigators.

Caucasus Region a Gateway Between Asia and Europe

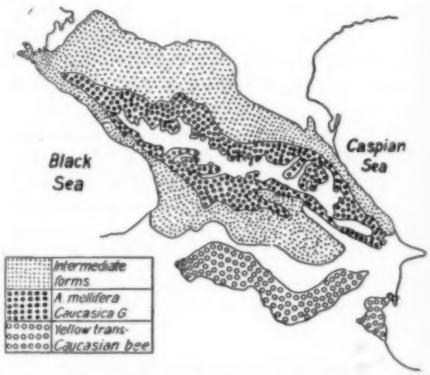
In the migration of peoples from Asia to Europe in centuries past, all these vast hordes passed over or near the Caucasus Mountains. Each group seems to have left a sample behind it, for there are about one hundred nations of people living in these mountains, speaking thirty-seven different languages. While they have long been and are now under a single central government, these people are now encouraged by the communists to use their own languages, so that one must be a real linguist to get on in these mountains unless he has good friends with him to translate. Furthermore as is to be expected, all these races of people, many of them not highly developed, do not always live together amicably, and wars and raids were once the common means of livelihood. Of such conflicts we saw evidences in the ancient watch towers on mountain tops and primitive fortresses everywhere. We even saw some evidence that banditry and conflict have not entirely disappeared from the mountains, but that is still another story, out of place in a beekeeping journal. At any rate, a view of the mountain heights and of the people led us to understand why all the bees of the range are not better known.

An Expert on Bees of Caucasus Region

Gorbietcheff lived in Tiflis for many years and probably knows the bees of the Caucasus Mountains better than any other person. He has mailed most of the Caucasian queens to the United States that have been imported for the past several years, and when he went to the Essentucki Station from Tiflis, those Americans who wished to import Caucasian bees were quite lost, for they could not learn where Gorbietcheff had gone. He has tramped these mountains in search of bees and has studied them in their native haunts, and his opinions are more important than those of most persons who have tried these bees in other lands. He has prepared a valuable map of the distribution of bees in the Caucasus, and this map has been redrawn by Alpatov. A copy from Alpatov's paper is here presented.

The central area of the Caucasus Mountains is either an unknown land or is without bees, for the higher parts could certainly support no bee life, some of it no life of any sort. On the map surrounding these heights will be seen heavy dots indicating the distribution of the typical gray Caucasian bees, surrounding these on all sides are what Gorbietcheff calls intermediate forms, and it was among these bees north of the mountains that we encountered those that were so cross.

The question has repeatedly arisen whether Caucasian bees ever show any yellow color on the abdomen. Gobrietcheff also answers this question, for south of the mountains are the yellow Trans-Caucasian bees, in Armenia and Lenkoran, which Gorbietcheff calls the Persian bee. This is the yellow race of bees described by Pallas many years ago as distinct from Italian bees.



Map of the Caucasus showing the distribution of different races of bees. From Alpatov after Gerbatchev.

Alpatov states that the bees of Abkhasia, in the mountains not far from the eastern coast of the Black Sea, differ from the typical Caucasian bees of the central chain in their behavior and biology, but it is to be suspected that he refers more to bees in Abkhasia near the coast line and not in the mountains proper, for Abkhasian bees are gray and are the bees which Gorbietcheff has sent to the United States.

Caucasian bees have the longest tongues of any bees so far studied. Abkhasian bees, for example, are found to have tongues averaging 6.73 mm. long, whereas the Italian bees in the apiary here at Cornell in 1927 had tongues averaging only 6.224 mm. Italian bees in the United States have tongues varying in averages between 6.166 and 6.419 mm. Caucasian bees from Colorado were found by Alpatov to have tongues 6.638 mm. long. This

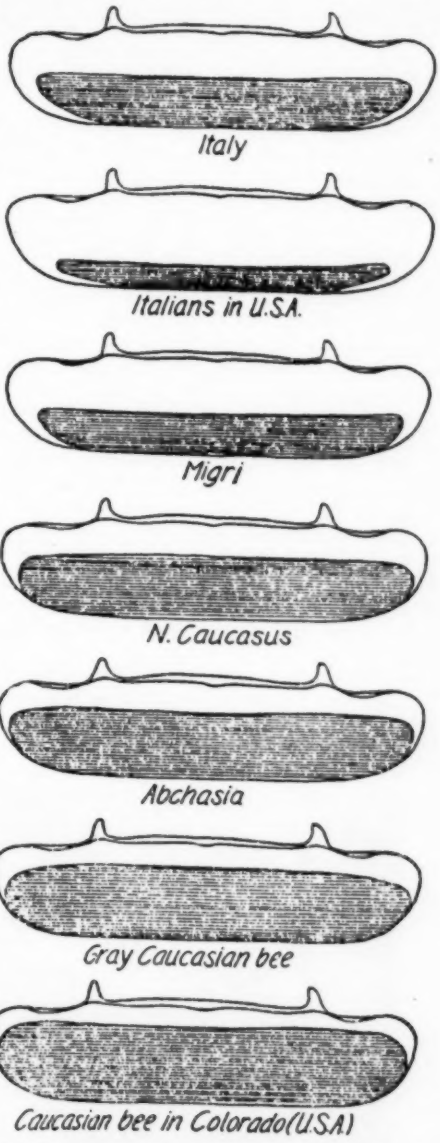
is in harmony with results of Caucasian bees transported to another location in the Soviet Union, for these bees changed their body size in the first generation but not their average tongue length.

That extensive collection of propolis is common with Caucasian bees is evident from what was told me at the Essentucki Station. There they tried glassed hives, of which more is said elsewhere in these articles, and the Caucasian bees promptly sealed the frames back of the glass until they were light tight. Their reputation for gentleness is the same in their homeland as here, namely, that they are the most gentle bees so far known.

It is claimed that Mingrelian bees, from the southwest section of the Caucasus range are still a different variety or race, at least this is claimed by Michailov. When I met him in Moscow he told me that he had just returned from Mingrelia and had brought with him a colony of bees with the longest tongues ever measured. Alpatov had previously measured tongues of Mingrelian bees and found an average length of 6.856 mm. One-tenth of a millimeter is not a great distance, but added to the tongue length of a bee it is large. There was an old expression in this country about the magnitude of an inch on the end of one's nose—a good comparison. Since the corolla tube of red clover is usually about 9 mm. deep, it is clear that an additional fraction of a millimeter on the tongue length brings the honeybees with longer tongues nearer to suitability for red clover pollination.

Color of Caucasian and Other Races of Bees

Alpatov has also obtained some most important data about color of Caucasian and other races of bees which he has summarized in a figure which is here copied. He has drawn an outline of the third tergum of the abdomen for each race and has indicated the average dark coloration. By giving his entire figure, some other interesting facts come to light. It appears that the American-Italian bees which he studied are lighter in color than the bees which he obtained from Italy, a situation which has been suspected but not before demonstrated so clearly. American-Italian bees are also slightly larger than the bees of Italy. The Migri bees are Trans-Caucasian yellow bees. It is interesting also to note that Caucasian bees from Colorado show more gray color



Scheme of coloration of the third tergum of Italian and Caucasian bees based on measurements of the yellow stripe. From Alpatov.

than do the bees of Abkhasia or the typical gray Caucasian bees.

We usually still designate races of bees from their place of origin and describe them for their general color and their behavior. Frequently the common descriptions are incorrect, even in such a simple thing as place of origin or the area of their natural distribution, as I found to

be true of the Carniolans. Alpatov properly maintains that we should, in so far as possible, base our descriptions on measurable qualities, and these he has sought for most of the known races. Before long we should have accurate descriptions of the races of bees, chiefly expressed mathematically. It is also to be understood that bees raised in America from a few imported breeding queens may differ considerably from the average run of bees in their place of origin. Most of the descriptions of races of bees used with us are scarcely worth publishing. Practical tests made of the different races are usually even less valuable than our descriptions, because of the smallness of the trials. It is clear that in their native haunts bees intermix and intergrade, so that for importations and tests it is essential that stock be obtained from the right locations. For most races we have had until recently no way of learning the best places from which to make importations and have erred many times, as much as was done when the first Italian queens were brought to America from Switzerland.

Place of Origin of the Honeybee

On the basis of the findings regarding the bees of the Soviet Union, one is tempted to include a discussion of the origin of the honeybee. It is usually assumed that the honeybee has its origin in Asia and migrated or was carried to Europe and Africa, later to be transported to America and elsewhere throughout the world. If this is true, the migrations or transportations to Europe doubtless passed through the region of the Caucasus, although if natural migrations occurred it may then have been quite a different county than at present. If, on the other hand, as is sometimes thought, the bee originated in northern Europe, then it must have migrated or have been transported to Asia, and again the Caucasian region would probably be used in passage. There is probably nothing about the Caucasian bees to suggest a primitive nature for them, except perhaps their excessive use of propolis and a tendency to swarm more than some other races.

Wherever the honeybee came from, it is now world wide in its distribution, and man has mixed things up so that it is only in places like the Soviet Union, where there has been little transportation of colonies, that one can still find bees in their original form in the original habitat. With the vast beekeeping enterprise now being undertaken in that country, it is to be expected that within a very few years some of the strains will have dis-

Adult school in collective village. Photo from American Russian Institute.

appeared and certain preferred races will dominate the country. It is fortunate that the studies of Alpatov, Michailov and the others have been made before man gets in his evil work of mixing things beyond recall.

There has been some difficulty in obtaining shipments of good bees from the Soviet Union in the last few years. This was partly due to the fact that Gorbietcheff, the one man who knew the business and who was known to our beekeepers, moved from Tiflis and we seemed unable to find out where he was. The Honey Export Corporation of the Soviet Union (Plodoexport) proposes to undertake the exportation of Caucasian bees, and I was told that these bees will be reared at a mating station near Essentucki. This is rather too bad, for the bees native to the Essentucki area are cross and not desirable purchases. The Armchi state apiary in the Caucasus Mountains maintains a mating station high in the mountains and that would seem a more favorable place to make the matings of queens for export, except for the inaccessibility of the station. At any rate, somehow or other, we should be able to get more Caucasian queens for further trials. There is, of course, the restriction against importation of queen bees except through the Department of Agriculture, and that may prevent merely curious beekeepers from fooling with imported Caucasian stock.

Ithaca, N. Y.

Incentives to Better Fall Management

J. H. Merrill, Ph. D.

How to Build the Foundation for a Honey Crop Next Year

What is an incentive to action? A sum of money offered as a reward for well-doing would not, in itself, prove an incentive to action to anyone unless he could visualize some use to which he could put this money. In much the same manner depends the extent that we observe the truisms of fall management of bees. These truisms are plenty of young bees, plenty of room, plenty of stores, and plenty of protection. These act, interact, and react upon one another. Postponing the application of the principles of fall management until spring would be equally as foolish as locking the barn door after the horse had been stolen.

The aim of fall management is to encourage the maximum transformation of stores into brood at the proper time which, of course, is the following spring. This should begin with what Demuth calls the "Beekeeper's New Year," or that time when we begin to direct our efforts toward the gathering of next year's honey crop. This new year begins in the late summer or early fall of our calendar year.

Importance of Plenty of Young Bees

Let us now consider some of these practices and their incentives or what we may expect if we observe them. First, plenty of young bees in the fall ought to mean plenty of bees at the beginning of the honey flow. Bees differ from those animals which work, become tired, and by resting restore their normal activity. Bees have only a certain amount of energy to expend after which they die because they can not build up their bodies by rest.

The work which bees are called upon to do during the winter months consists of two kinds. One, is the performance of hive duties and the maintenance of a proper living temperature by muscular exertions. The other is the feeding and rearing of brood. Of the two, the latter seems to be a greater drain upon their energy. This conclusion may be somewhat influenced by the fact that brood-rearing, coming as it does after the bees have wintered, finds them at a time when the total energy of the colony is further depleted than at any other period. Consequently, the death rate at this time of year will be greater. However, observations which were made upon the development of package bees seem to indicate that brood-rearing does exact an unusually heavy toll on their energy.

A large number of bees in a hive can

maintain a proper hive temperature throughout the winter at less expense to individual effort. This saving in energy will prolong the lives of the individual members so that there will be more bees in the hive to carry on the heavy work of brood-rearing in the spring.

Another point well worth noticing is that a queen is an egg-laying machine which automatically deposits eggs whenever the temperature within the hive reaches the egg-laying point. The more bees there are in a hive, the larger will be that portion in which a proper egg-laying temperature is maintained. The consequence of this is that there will be a much higher rate of brood rearing provided the hives are also well filled with stores.

An editorial in the June issue of Gleanings in Bee Culture called attention to the fact that colonies developed to a swarming strength because the bees had been confined to the hives for a long period by inclement weather. This could only have happened in colonies which not only had plenty of young bees but an abundance of stores as well.

Influence of Abundant Stores

Plenty of stores is probably the most essential need of all, for if this is neglected the other three will have no chance to act. Several years ago, J. E. Crane stated in a letter that if colonies had plenty of young bees and were well supplied with stores they could stand a tremendous amount of punishment. He also stated that without stores, packing would not be of much avail.

Several years' observations which were made on wintering bees in Kansas, indicated that a colony of bees in condition similar to those found in that state on April first, should have left about 20 pounds of stores. In order to know what Kansas conditions are at that date, one can figure forward or backward from the fact that potatoes are planted in Kansas on or before March 17.

It might be going too far to say that it is impossible to intelligently feed bees in the spring. However, it is highly improbable that many beekeepers are well enough versed in the knowledge of bee behavior to know just when their colonies need food. As pointed out in the aforementioned editorial, colonies will exist at the starvation point for some time, but during this time they will raise little, if any, brood. No real beekeeper is in the business just to see how long a colony of bees can live without stores. If spring feeding is attended to in the fall, the bees will be spared this starvation period and will devote their time to the more profitable work of brood rearing. As a general rule it would be found necessary to leave at least 50 pounds of stores in each hive in the fall.

The amount of stores which a colony of bees will need during the winter season depends not only upon the number of bees in each hive, but also upon the type of hive and the protection which is given it. Experiments showed that in unpacked hives, bees consumed a little less than 2½ ounces of food daily during 180 days of the winter. The bees in the packed hives consumed less than 2 ounces daily while maintaining a living temperature during the winter, but they increased their food consumption markedly during the late spring after brood rearing had begun. One instance which is typical of all the others is that of a packed colony which consumed 11⅞ pounds of honey during March. Since it had over 30,000 more bees at the honey flow than did the unpacked colony in the same winter, would not this be considered an incentive to leaving plenty of stores?

When speaking of young bees, mention was made of the fact that the more bees in the hive at any one time meant just that much more hive space in which the egg-laying temperature could be found. This, of course, is brought about by the heat which emanates from the muscular exertions of the bees while feeding. It is self-evident that a large number of bees can not consume large amounts of honey at any one time in a hive unless there are plenty of well-placed stores.

Room for Both Bees and Stores

Plenty of room means sufficient hive space to contain an adequate amount of stores and at the same time to provide enough room for spring brood rearing. Data obtained from wintering experiments showed that bees consumed 2½ ounces of honey daily for 180 days previous to April 1. If it is desired to have 20 pounds of honey remaining in the hive at that date, it would be necessary to leave in the fall at least 50 pounds of stores. This would be an impossibility in a single-story hive because it requires about 1000 cells to hold a pound of honey.

Consequently, a 10-frame Langstroth hive would contain about 50,000 cells. It can easily be seen that if 50 pounds of stores are left there would be no room for the bees. To meet this difficulty, it would be necessary to use a shallow food-chamber, a hive with deeper frames than the Langstroth, or two full-depth hive bodies. If two hive bodies are used, it should be borne in mind that two 10-frame hives would have 100,000 cells which is more than is necessary while two eight-frame bodies with only 80,000 cells would come nearer to fulfilling ideal conditions.

Influence of Winter Protection

Protection is a broad word when applied to beekeeping. Specifically, however, we should think of it as being used in the sense of protecting bees from unecessary labor, thus prolonging their lives. This is particularly true as applied to winter protection. At this time it is necessary to protect bees against two things: the prevailing winds and climatic changes. It is the prevailing opinion that bee hives are packed to protect bees from the cold in much the same manner that we blanket a horse. However, such is not the case, because bees, being cold-blooded animals, are not kept warm by the addition of packing but are rather insulated against the disastrous results attendant upon climatic disturbances. Whether or not it would pay to pack bee hives may be gleaned from the following figures. Observations were carried on over a period of several years with packed and unpacked hives, both in a windbreak and in the open.

Not only the value of packing but the value of windbreak is shown by the fact that a one-story unpacked hive without a windbreak had 11,718 bees in the spring; a two-story unpacked hive had 16,406 bees while the packed hive had 36,718 bees. Of the hives in the windbreak, the one-story unpacked hive had 14,063 bees; the two-story unpacked hive had 20,936 bees, while the packed hive had 38,594 bees. It might also be added here that the one-story unpacked hive in the open had only 3⅜ frames of brood while the packed hive in the windbreak had 5¾ frames. Shouldn't these facts be considered as an incentive for protecting bees in winter?

Packing Advantageous Even in Mild Winters

Another misconception often held in regard to winter protection is that, on account of open winters, in some localities, it is unnecessary to pack bee hives. Whether or not this is borne out may be learned by a study of the following facts. During a cold winter the packed colony gained a total of 2,102 more bees than did the two-story and one-story unpacked hives. The next winter, which was an open one, the packed colony gained 19,217 more bees than did both of the unpacked colonies together.

To fully understand the value of a windbreak the following is submitted: The total number of bees gained by the colonies without a windbreak was 7054, while those hives protected by a windbreak showed an increase of 33,016. During the open winter, the total number of bees gained by those colonies without a windbreak was 19,217, while with those protected by a windbreak the gain was 31,093. A word of explanation should be added here, that while the packed colony in the open winter unprotected by a windbreak was gaining 22,968 bees, the two unpacked colonies lost 3751, which indicates that whenever a windbreak is not available packing to a great extent offsets this disadvantage.

Packing Retards Untimely Winter Breeding

Daily records were kept of the amount of honey consumed by the bees and it was found that after every warm spell, throughout the winter there would be an increased consumption of stores for periods extending from six to nine days, indicating that this extra honey was being used to feed brood. With the packed colonies the daily consumption of stores was much less than it was with the unpacked ones and there were no periods of brood rearing until spring.

This midwinter brood rearing was not only costly to the stores but the unnecessary expenditure of energy resulted in a greatly decreased number of bees in the spring. When brood rearing began in earnest, the packed colony, owing to the fact that it had a large number of bees, consumed daily, large amount of stores, which, being transformed into energy, maintained an egg-laying temperature over large parts of the hive and the queen, deposited a large number of eggs so that the beekeeper's ideal of transforming a large amount of stores into a large amount of brood at the proper time was fulfilled.

Raynham Center, Mass.

Observation Hives for Public Museums

Penn G. Snyder

Much-Neglected Method of Bringing Honey to the Attention of the Public

It appears to me that beekeepers have been remiss in not taking advantage of the possible publicity afforded by our public museums. Back in 1910, an observation hive was installed in one of the museums in Philadelphia, Pennsylvania. I doubt if any of the bee journals were aware of it. Later, one was installed in the National Museum at Washington, D. C. Several years ago I put one of these small colonies in the science room of one of the Dayton schools where the Normal School students were taught. Later I installed one in the Dayton Library Museum which is a very creditable institution considering the size of the city.

These hives have produced quite a bit of comment and articles in the daily papers. As the donor's name and address is prominently displayed on the nucleus, it is an advertisement which will attract the public 365 days of the year. The cost of installing is not much. Naturally one must keep an eye on it a couple times a month and at times more frequently.

Opposite the hive in the museum I have a chart attached to the wall with the following notes in large lettering:

Notes on Bees (Apis mellifica)

The hive bee pre-dates all written history.

Honey was man's first sweet.

The ancient peoples likened anything sweet to honey. We moderns are more apt to say "as sweet as sugar."

Honey is the only concentrated sugar food found in nature.

Honey is spoken of in the Holy Bible no less than 61 times.

A strong colony of bees will number at the peak of the year's strength upwards and over 100,000 bees, consisting of one queen bee, or mother; hundreds of drone bees, or males; thousands of worker bees, or infertile females.

Normally a queen bee mates but once during her life. This act results in the death of her mate or husband.

The queen or mother bee can lay at will eggs producing all males or all females. She can lay her own weight in eggs within 24 hours. This pace can be kept up for a period of 10 days or two weeks.

The baby bee larva increases in weight 1500 times within its five-day period of feeding and growth. Its food is predigested pollen mixed with honey. It is a wonder food.

Worker bees frequently eat their own weight in honey within 24 hours.

Mothers pity the bee. At times one colony will have as many as 18,000 babies all crying for food, each needing food or individual attention 1200 times within each 24-hour period.

A worker's life is not mentioned in time, but by its labor. Usually six weeks' work spells death to these busy insects.

Plants produce vast amounts of sugar for their own needs. A small part of this goes into the production of nectar. From this the bees manufacture honey using most of it for their own purposes. Some is stored for future use. Part of this surplus is used by man.

Remember, the bee gathers nectar, not honey. Nature produced the chemical formula of honey, the bee produces the laboratory and labor, and the beekeeper provides the factory building or hive.

Bees are heavier than air flyers. They probably carry a greater weight than any other air traveler. Customarily taking off with a load equal to one-half its gross body weight. Such labor requires a vast expenditure of energy and a vast consumption of fuel. Honey is the fuel used, and the flowers are the bees' filling stations.

Each pound of honey represents some 20,000 individual trips to the field of flowers. The distance traveled is equal to one and a half times around the world at the equator for each and every pound of honey stored by the bees.

The wonders of a pound of honey carry us to the chemical laboratories of the plant, the equally mysterious chemical and physical labor activity of the hive and into the mysteries of the life of the bees themselves.

Honey is virtually a living material, the result of co-operative physiological processes of plants, bees and even man himself. For humans, honey provides a quick bodily pick-up. It is the one instantaneous energy food for man.

Honey comb or beeswax is another product manufactured in the laboratory of the bee hive. Aside from the labor used, each pound of wax represents the consumption of from 12 to 20 pounds of honey used by the bees in its production.

Beeswax or honey comb has never yet been made by man synthetically.

Some hundred thousand different species of flowers depend on insects for cross pollination. The honey bee surpasses all other insects in this very valuable work. Man owes most of the berries and fruit of the trees to the work done by them in pollinating the individual blossoms. Without our bees but little fruit of any kind would be produced. This is the bees' greatest work for man. Production of honey in money value is very small in comparison.

The flavoring material placed in nectar by the plants is priceless. It is retained by the bee in the final production of honey. Man can not concoct a food as delicious, as varied, or as pleasing to the palate as the product of the bee —honey.

As you may see, this is only hitting the high spots. Giving the eye arresting facts and using as few words as possible. Those who have carefully read the series of articles on honey by Dr. E. F. Phillips, published in this journal in 1929 and 1930 may note that I have made use of some of his statements in the above notes.

Honey Brought to Attention of 50,000 People

The records of the museum show that over 50,000 people visited the institution during 1931. There can be no doubt of the value of such an exhibit as an advertising medium in putting bees and honey before the public.

Most museums give a course of lectures during the winter months which are free to the public. If the beekeeper has the ability to talk before an audience, it will not be difficult for him to be assigned a date for a talk on bees or honey. If a movie film or even lantern slides can be shown in conjunction with one's talk, it adds interest. Frequently one can obtain such slides or films from the county agent or the state agricultural college or from the Department of Agriculture at Washington, D. C.

During the past winter I was privileged to give a talk at the Dayton Museum and I am booked for one the coming fall on honey, and another one on bees during the winter.

Doctor Metzler, in charge of the museum, stated that some months ago a small boy visitor asked him why the museum did not contain anything alive. Everything shown was old and dead. He added that "no one could now make that statement. Since the glass observation hive was installed, it has become the most looked at and sought for of any of the thousands of exhibits."

It is interesting to note the actions of the visitors when they come close to the observation hive. One hears the question again and again, "Where is the queen bee?" Some will go away, then return to take another view. All kinds of comments will be heard. The observer can have no doubt as to the popularity of the moving, living exhibit.

A well-appointed observation hive of bees will interest any and all classes of the public. There is something there to intrigue the interest of the child, the student, and the grown-up. The "lowbrow" is attracted probably as frequently as the intellectual, although from very different causes, but the attraction is there for all classes. It is almost a speaking advertisement for the use of honey as it focuses the attention of the public on bees, and to the average individual bees mean honey.

Improvement in Observation Hives

In my first years of beekeeping I repeatedly tried one-frame glass observation hives. As they held only one frame and had only single glass sides, they did not prove a great success. The bees did not like their home and objected to remaining in it for long. Off and on as the years passed, I tried my luck again with what I thought would be improvements on my previous attempts. Finally I believe I have a hive that will give fair results.

The hive I now make holds a standard frame with shallow extracting frame, and above the latter there is an additional space of 2½ inches. This space is taken up by 12 small combs which the bees build on foundation. These small combs go from glass to glass and are at right angles to the two frames. I fasten the foundation to the inside of the cover and the bees do the rest. I sometimes omit the shallow frame, then the small combs extend down to the top of the standard brood frame. The latter method gives a much greater comb surface but is not so good for the purpose of observation on the part of the public. For the student of bees it is the better arrangement.

As the hive is double-walled with glass, the inside wall always remains warm. The only part of the hive coming in contact with the cold out-of-doors is the entrance which is a runway six inches in length. By this method the hive proper is surrounded by air of the room temperature.

Mysteries of the Hive Revealed

At times these small combs become very interesting as in rare instances one can see the queen deposit eggs in the cells adjoining the glass, and later, see the larva being fed. In fact, I have watched the metamorphosis of the bee from the egg to the emergence of the young bee. When we see the pupa of the bee in an ordinary hive it is invariably white, but when exposed to the light it quickly takes color. In the glass hive, as one side of the cell is composed of the glass wall, it colors up much earlier than under normal hive conditions.

In the cover I have a hole which will admit the neck of a pint bottle which has a metal cover with three small holes punched through it. This is a feeder. I feed two and a half times the measure of sugar to one of water. It is mixed when the water is boiling, and when the sugar is dissolved, I add a little tartaric acid. This food being so thick saves the bees much labor. I have often colored the feed with a green or red vegetable color. If

the comb is fairly new one can see where the food is placed and follow it.

There is also an inch hole in the middle of the bottom covered with a wire screen on the inside and a movable shutter on the bottom outside. Opposite the entrance there is another such opening. These openings have proved satisfactory in giving all the ventilation the bees needed.

Dayton, Ohio.

Value of Beekeepers' Summer Field Meetings

E. R. Root

Suggestions for Using the Carbolic Acid Method for Driving Bees from Supers

Seeing is believing. This is only another way of saying that we can read and hear about a new old trick of the trade, but when we actually see the process step by step with our own eyes we are better satisfied. It is for this reason that the summer field meets help to clarify some things that were obscure or misunderstood from the printed page. In some cases the meetings are held at the home of some prominent beekeeper. A thorough inspection of the apiary and the workshop is often followed by a tour among the other beekeepers in the locality. This was the plan of the Michigan field meet as described in our last issue (pages 538 to 542).

There are other times when there has been no crop that the meeting is held at some lake resort where there are accommodations for camping out and having picnic lunches. This was the case of the Ohio and Pennsylvania meetings this summer. The Ohio meet was held at Anderson's Beach on Lake Erie the evening of August 11, and at Ruggles Beach the next day. The Pennsylvania meeting was held at Panadotha Lake, on August 10. There was also a fine field meet of the Empire State Honey Producers' Association at Roseland Park Lake, Canandaigua, New York, which I was not able to attend.

The summer field meets of beekeepers have been growing larger of late, while the winter meetings have been growing smaller. The meetings this summer have been unusually large—the largest I have attended in years in spite of the series of drouths and poor seasons. This is due to the low cost of transportation by automobile and good roads. One can often go to these meets for a little over a cent a mile and sleep in a tent over night. This low cost is more than met by the exchange of ideas, by the social contacts, and by a direct knowledge of what the other fellow considers a fair price for his honey. This of all years was the time to learn the selling price of honey and where it could be had. At all of the summer field meets held in the country, the price of honey and where it could be had

The Ohio beekeepers in session at Ruggles Beach, on Lake Erie, on August 12, 1933.

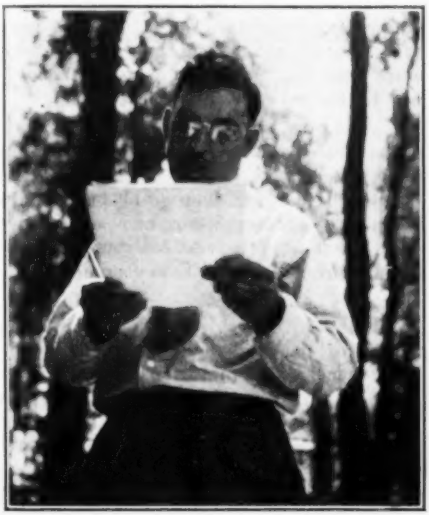
was the drawing card that boosted the attendance this season. The one with no crop can help the other fellow as well as himself when he buys to supply his market. Much honey was contracted in this way.

The Ohio Meet

At the Ohio meet the question of price and where to get a supply occupied considerable attention. It was agreed that the price was going up. There was one of the best crowds of beekeepers at Ruggles Beach that was ever assembled in Ohio. Although it had been a poor season —the poorest in years—the Ohio beekeepers voted $75.00 in support of the American Honey Institute and at a later and smaller county field meet at Columbus, Ohio, $25.00 more was pledged to the American Honey Institute.

Prof. Dunham's students, who have been doing some special research work at

the Ohio State University, gave reports of their work at this meeting. I'll not take space here to review them, but they were all so good that I have asked for papers which we hope to give in these columns as soon as the work is completed. I refer particularly to Mr. Freshwater's



W. E. Dunham, Professor of Beekeeping, Ohio State University and secretary of the Ohio Beekeepers' Association, reading his report at the Ohio field meet.

work in measuring the tongue reach of bees and Bailey's on the subject of pollination.

Chas. A. Reese gave a report of bee inspection work in Ohio with the greatly reduced budget. If it had not been for the assistance of county funds, the work would have been greatly crippled. He also explained the purpose and operations of the new Ohio law affecting the marketing of vegetables and honey. Under this law, honey from without the state would have to declare its source.

The Pennsylvania Meet and the Carbolic Acid Method of Driving Bees from Supers

At the Pennsylvania meeting, the big feature was the talks and demonstrations given by Father M. G. Hepner, of St. Mary's College, North East, Pennsylvania. In his first address he referred to the article by Chas. Mraz in the July, 1932, issue of Gleanings in Bee Culture, page 412. While he claimed no originality in what he was about to say, he wished to make some points in the procedure clear. First, pure carbolic acid crystals, not the liquid, must be used to make the solution. It can be obtained at a drug store. He then showed the crowd an original blue-glass bottle, unopened, containing the crystals. The cheap crude or the usual liquid carbolic acid should not be used as it would leave an odor on the honey. The pure crystals can be dissolved by placing the container in warm water and then adding 25 per cent of water. This solution can be diluted further by adding 25 per cent more of water when it is ready for use. This will make a 50 per cent dilution from the original crystals.*

Father M. G. Hepner, of St. Mary's College, North East, Pennsylvania, and Father Heibel, of Erie, Pennsylvania.

This solution he explained would corrode the skin, and care must be used in handling it. The supporting frame advised by Mr. Mraz to hold the carbolized cloth above the frame allows the fumes to circulate as well as protect the fingers. "The reason why some failed in getting the bees out of the supers," said Father Hepner, "was because the solution was too weak or the product too poor in the first place."

This solution or a part of it is next put into a long-necked bottle. An ordinary pop bottle with a sprinkling cap, is about right. The old way was to dip a piece of cloth larger than the top of the hive into a weak solution of carbolic acid. The cloth, when wrung out, was placed over the super. A cloth like this resting on the tops of the frames is not as effective as when it is raised up high

*In the June, 1933, issue of this journal Mr. Mraz now advises not to make the second dilution. He says that the bees will go out of the supers sooner if only 25 per cent of water is added to the crystals. There will be, of course, all the more need to keep the fingers away from it.

Father Hepner demonstrating the use of carbolic acid in driving bees from supers. The carbolized screen is on the hive and the bees are rapidly being driven down by the fumes.

enough to allow the fumes to pass over and around the frames, and besides a weak solution is too slow in driving the bees out. With a 50 per cent solution, the cloth could not be handled by the hands without blistering the skin. Father Hepner strongly recommended tacking the cloth on a wooden frame as recommended by Mraz in the article already mentioned. In place of the black cloth cover he uses black sheet metal to help absorb the sun's rays because it is more permanent than the black cloth.

Before using, the contents of the sprinkler should be well shaken as the water and the acid do not stay mixed. The cloth should be sprinkled enough to make it wet, but not enough to make it drip. When so prepared one such screen or cloth on the frame can be used repeatedly for four or five hours.

It is advisable to have five or six such screens—the more screens the faster the work. The supers are then arranged so that the unfinished ones will be at the bottom and the completely filled ones on top. Five such hives, or as many as there are screens, are prepared, after which one screen is placed on each of the hives. If the sun is hot, the top super will be free of bees, in four or five minutes, or at most only a few bees should be left. These can be driven out with smoke. If the bees do not go out promptly, the solution is poor or weak. In cooler weather it will take more time for the bees to go out according to Father Hepner.

He believed this to be one of the greatest tricks of the trade or labor savers in recent times. It saves going to outyards the day before and then going back again to get the supers when bee-escapes are used. In short, it saves one round trip to an outyard to get the honey free of bees.

In this connection it might be interesting to note that this method of freeing supers of bees is very old. It has been used successfully in Europe as well as in America for over 40 years. The Mraz plan is new in that it uses a much stronger solution on a cloth tacked to a framework. Such a concentrated solution clears the bees from a super much faster than the old weak solutions wrung out of a cloth.

Pennsylvania beekeepers in session at Panadotha Lake, on August 10. Howard Myers, Ransomville, New York, speaking.

A cloth fastened to a frame as here shown makes it possible to keep the hands free from burning and at the same time completely covers the hive and provides free circulation of the fumes over the tops of the frames. This is important.

The question was raised whether the strong smelling solution would leave an odor in the honey. Father Hepner said that if the pure crystals are obtained, no such odor would be discovered after the supers have been allowed to ventilate.

Caution

Chas. A. Reese, State Apiary Inspector

for Ohio, said at the Ohio Field Meet that he had been in honey rooms where the odor of carbolic acid could be detected for days afterwards. This emphasizes the importance of following directions as here given and of securing the right kind of chemical. The carbolized cloths or screens should be used outdoors—not in a honey house. After the bees are driven out, the supers should be placed crosswise in a bee-tight room where fresh air can circulate through them.

Caucasians, the Gentlest Bees

In his second address, Father Hepner gave a demonstration in the rain with pure Caucasian bees. Any bees are inclined to be cross when it is raining. Without using smoke, he ripped off the cover of the hive of these bees that he had brought with him. He kicked the hive, then pounded on the tops of the frames with his bare fists. He jerked out the combs one after another. All this was done in a light mist of rain on a dark day. Not a bee showed any fight and no one was stung. He said that he had tried out various races of bees, but had found none as gentle as these. He has no queens for sale so that his statement can be taken without bias.

Father Hepner with his hybrid colony, a cross of Italians and Caucasians, that got loose when the truck jolted, and made things lively in the vicinity.

The only objection that has been raised against Caucasians is that it is difficult to rear them in their purity. This country has either Italians or the old black bees. In most localities the Caucasians reared in the United States will be a cross between the Italians and the blacks. Such a cross is by no means as gentle as the pure Caucasians, and some think they are much worse than Italians crossed with blacks.

Father Hepner demonstrating the gentleness of Caucasians in the rain. He pounded on the hive, ripped off the cover, and jerked out the frames without using smoke. No one was stung.

Father Hepner had brought on a truck a colony of pure Caucasians and a strong colony of Caucasians crossed with Italians. Before it reached the grounds, the truck ran over a big bump which broke the hive fastenings of the hybrids, and the bees escaped. They stung both Father Hepner and some of the occupants of machines following. The picture tells the story. Those who followed in other machines were bothered some. A couple of little girls were trying to "shoo" the mad bees with handkerchiefs. This procedure is proper for mosquitoes and flies but not for mad bees. Mind you, these bees were not the pure Caucasians that Father Hepner demonstrated. They were a cross between Caucasians and Italians and as such indicated that this type of hybrids may be crosser than hybrids from Italians and common blacks. Wesley Foster brought this point out in the October, 1932, issue of this journal.

The Native Habitat of Caucasians

On pages 588 to 595 of this issue is an extended article by Dr. E. F. Phillips on the Caucasian bees in their native habitat. On page 591 particularly he explains why there has been such a variation in the temper of Caucasians. He finds that the "bees are gentle" in the mountains but that those in the North Caucasian Republic in the flatter country "are exceedingly cross." On page 595 he notes that there has been some difficulty in obtaining good Caucasians from the Soviet Union in the last few years. He regrets that while the gentle bees come from Tiflis, it is now proposed to export them from a region near Essentucki where the bees are cross.

During his recent visit at Medina on September 20 and 21, Dr. Phillips called attention again to the variation in the temper of Caucasians. He was afraid that the later importations on this account would not come up to the good reputation of the pure Caucasians mentioned on the preceding page in the hands of Father Hepner.

The Honey Export Corporation of the Soviet Union which proposes to undertake the exportation of these bees in the future should understand that if it sends to America Caucasian queens mated in a region where the bees are cross, our beekeepers here will have no more of them. There is already a prejudice against Caucasians because they look like the black bees of this country and because they are known to be bad propolizers. If subsequent importations are cross or are not even as gentle as Italians, it is plain to be seen that they will make little headway here. The difficulty of telling whether one has a pure stock and the difficulty of mating Caucasian queens to pure Caucasian drones are not easy to overcome.

The attention of the Honey Export Corporation of the Soviet Union should be drawn to this if it desires to secure a market for Caucasians in the United States.

America beekeepers will welcome bees like those Father Hepner demonstrated. It is to be hoped that only the gentle type will be imported.

If what Dr. Phillips says and what is here said will be the means of securing a gentle race of Caucasians, we all shall be happy.

Unknown Factor in Queen Rearing

Allen Latham

An Important Problem for Government and College Research Workers That Should be Solved as Soon as Possible

The average beekeeper is so tied up with the problem of making a living for his family, and possibly laying aside a little for his old age, that he finds very little leisure to solve some of the problems that arise. This is especially true of the commercial queen-breeder.

Every queen-breeder runs up against one particular difficulty. Hundreds of queens will run true to form, then suddenly nearly all the queens in one or two batches of cells are not worth saving. He can lay his hand on no sure explanation for this happening. So far as he knows he has not varied his usual procedure, but there must be some hidden reason. In my own case I have had this happen many times, and I think that I am a fairly close observer. There have been times when I could lay my finger on the difficulty, but at other times I have been completely in the dark. I have craved leisure time to delve into the problem and find the solution.

My experience leads me to believe that those queen-breeders who practice the Doolittle or some related system will find that one's success is closely correlated with the selection of the larvae for grafting. To be sure, one must be extremely careful about the grafting itself, both in the manner of stocking the cups and in the manner of lifting out the larvae for transference. Also much care must be used that the little larvae are exposed to the air no longer than can be avoided.

Age of Larvae for Grafting

There is much opportunity for study along the matter of selection of larvae. Much has been written about the proper age. Well, what is the proper age? My own work shows that fine queens can be

reared with larvae from an hour or so of age up to nearly three days. Other things being equal, I prefer the older larvae in that two days of time can be saved. Again and again have I had splendid queens come from larvae which had passed two and a half days at the time of grafting. On the other hand, some of the worst queens I have ever reared came from very young larvae. Again, I have had excellent queens from the very young larvae and worthless queens from the older larvae. What can this mean?

It must mean that the age is not a matter of hours or days. It must mean that success depends upon the condition of the grafted larvae. Aside from age the condition of larvae may be dependent upon two or three things. The state or condition of the queen-mother may influence the larval condition. The number of nurse bees may influence it. The insufficiency of pollen or other food may influence it. The weather conditions may influence it.

Most Factors Already Under Control

But boiled down we need to consider only a few of these conditions. That the queen-mother must be in perfect health goes without saying. That she must be in the prime of life might be a disputed point, yet I am inclined to think that we are prone to keep breeding queens until after their real usefulness is gone. That the food factor is of tremendous import is not to be disputed. Unless the colony furnishing the larvae has abundance of food, both pollen and honey, the larvae will not be good. Unless the colony has a large percentage of nurse-bees to the number of larvae being fed then the little larvae will not develop fast, or will be partially starved.

I think all will agree with me in these statements. A queen-breeder must let his conscience decide whether he will graft under unfavorable conditions in order to have queens ready for his orders, or wait until conditions are right and keep his orders waiting. He may have to write a good many letters if his conscience holds sway. In my own case, it is difficult to get out early queens because for days at a time there may be a dearth of pollen. Good queens can not be reared unless there is an abundance of pollen. Now we can control most of these factors. Even the pollen factor can be controlled by lifting out combs heavy with new pollen in times of abundance and holding them over until needed.

There is one factor which still needs much study. I said that it mattered little whether a larva is a few hours old or nearly three days, for with other conditions equal each will produce a good, long-lived queen. But it matters tremendously whether that larva is at the right point for grafting. As everyone may know, bees practically always take away all the stock of jelly put into the cups at grafting. There is then a brief time when the larvae are without food. Possibly injury results from this. That it need not result is known because thousands of superfine queens have been reared by the grafting method. Why then any difference ever?

Influence of Moulting and Resting Periods

So far as I can see, there is but one missing factor now. Studying the growth of larvae, we know that, upon hatching, they feed for a few hours, get fat, and then rest a brief time for the first moult. They then feed ravenously for a few hours, again are fat, and again rest for moulting. Again they feed ravenously, and so on. Now it will be noted that we might select a larva under a variety of conditions. The larva may be just starting on its orgy of eating. It may be in the midst of it. It may be just completing it. It may be just about to rest. It may be in the resting period. It may be just moulting. It may be just through moulting. Does it not seem likely that it is because of this variety of conditions under which the larva may be that we get such a difference in the quality of queens at times? This is a very important matter and this is the thing of which research workers should make a careful exhaustive study.

I can predict some of the results. I can state with assurance that a larva selected at the very time of moulting will result in a non-accepted cup. At present, I am fairly confident that larvae just beginning an orgy of eating and larvae in the resting period will both give excellent queens. The acceptance of cells and the rapid feeding of their inmates is largely dependent upon the reaction of the nurse-bees. That the excellence of the resulting queens must be in direct ratio with the promptness of acceptance of cups by the nurse-bees will pass without dispute. As some lots of grafted cells are quickly accepted and bountifully supplied with jelly while others are more or less neglected and given but a scant supply, it must

follow that there must be factors of control which the queen-breeder would know and practice most gladly.

I believe that every queen-breeder would like every queen to be of the best, yet we all know that thousands of queens of low value go through the mails. One would hesitate to assert that any queen-breeder raises poor queens by intent—rather would we lay such an act to ignorance. To overcome this ignorance should be the duty of those research students in our college bee-departments.

Norwichtown, Connecticut.

Rich in Best Things in Life

H. H. Root and Leroy C. Keet

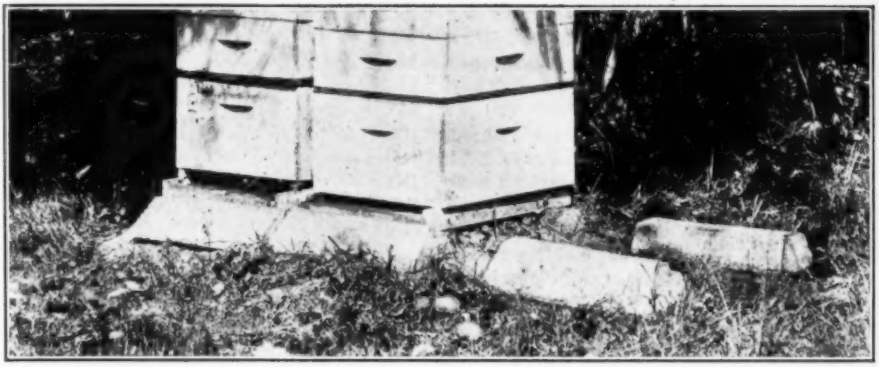
How a New York State Beekeeper Has Surrounded Himself With Conditions Which Make Life Very Much Worth While

Reading newspapers, riding through cities on trains and hearing radio reports of cities where one man in four or five is "on the town," makes one wonder why folks have to crowd together so closely. Who has not observed, when driving towards a city, the black cloud that hangs over it, indicating dust, smoke and impure air?

Leroy Keet, living on the edge of Watertown, New York, is a rich man. He has several cubic miles of pure, clean air to breathe and unrestricted sunshine. His own portion of this is worth all the violet ray lamps in the world. He has a pretty home with all modern conveniences, a wife (also his partner) who sets a wonderful table, and two fine daughters. He has a beautiful riding horse for the girls and plenty of room for them to ride. For transportation he has a good automobile and a truck. Last but not least, Mr. Keet has several hundred colonies of bees, an excellent concrete honey-house, extracting house, and other buildings as well. All this has come by hard work, most of which Mr. Keet has done himself. No doubt he works too hard, but he is healthy and happy, and he can look upon life more independently and with greater satisfaction than any man can who spends his time dodging trouble in a city.

Mr. Keet is fortunately situated in the wonderful Jefferson County of New York State, a county made famous by consistent yields of fine honey. White and alsike clover are the principal sources, but not the only ones. Even during 1933, when the rainfall was much below normal, the crop has been fair, due to the consistency of these sources as yielders, and to Mr. Keet's careful management. His preparations for the honey flow begin the year before, every hive being provided with more than enough good honey to last well into the next season, so that no valuable

Residence and honey houses of Leroy Keet, Watertown, New York.



Leroy Keet's concrete hive-stands. These are broad at the base and narrow at the top, with sloping sides, to facilitate easy removal from the forms. The front block is notched to receive the front end of the alighting board.

days are lost in getting colonies built up to proper strength.

Mr. Keet winters in a side-hill cellar. While he has done a lot of experimenting with ventilators, he considers strong colonies of young bees, headed by vigorous queens, on combs supplied with plenty of good stores, the real reason for his good results in wintering year after year.

Time-Saving Equipment

For the last 10 years Mr. Keet has used a big 45-frame extractor, power uncapping machine, and centrifugal strainer. As a time-saver in the bee yards, he lays great stress on his home-made concrete hive stands, saving not only his time, but the valuable time of the bees themselves which otherwise have to dodge weeds in reaching their entrances. The yards are located in gravelly soil and gravel and water are always convenient. When establishing a new yard, Mr. Keet goes out four or five days in advance with a few sacks of cement in the truck. With his wooden forms he makes wedge-shaped blocks, narrow at the top, broad at the base, and as long as a ten-frame hive is wide. The blocks are alike except that the one in front is notched to receive the front end of the bottom-board. These blocks, being so short, need no reinforc-

Leroy Keet, Watertown, New York, in his home yard. Watertown is not far from the eastern end of Lake Ontario. The limestone rock is frequently exposed. That in the foreground of the picture clearly shows the imprint of a fossil fish of thousands of years ago.

ing. Making the blocks does not take long. In four or five days they are ready for use. Grass and weeds can not obstruct the entrances and the hives have an adequate foundation, regardless of how high they are tiered up.

I am always sorry when I am obliged to be in New York City, but always glad when I can see the hills, mountains and valleys of the real country in New York State. And there is no part of that rolling state more beautiful to me than the rocky, gravelly hillsides of Jefferson County.

Comments by Mr. Keet

After reading the article Mr. Root has written about my riches, I think he has somewhat overrated it. That we have cubic miles of fresh air and sunshine is true—also plenty of work.

I have invested a great deal of my income in buildings and equipment, and it has turned out that it is safer there than in the stock market. I am fortunate in having a good gravel pit on the place, and this accounts for all my buildings being made of cement blocks.

Forty-four Tons of Honey in One Season

With the aid of my one helper called in at extracting time, I have produced 44 tons of honey in one season. It has been my constant desire to arrange my buildings and apiaries so that I could do the most of my work alone.

The new building in the background is for bottling and storage. I sell my honey direct to the grocery trade. Last year we marketed nearly 30 tons, most of which went to the grocery trade. My extracting house is for mussy jobs like extracting honey, making beeswax, and heating up honey. I can liquefy 2000 pounds at one time, which is then loaded on the truck while still hot, and transported to the bottling plant. The truck is then backed up to the tanks, and the 60-pound cans are easily emptied

In marketing five-pound pails, we use a label that goes around the pail. This is held on by a rubber band which also holds on a Kellogg pamphlet. This label carries a write-up from "Facts About Honey," by the A. I. Root Company and has been rearranged so that it can be used in this way. On the cover is my label with net weight and instructions on how to care for honey, with name and address.

Successful Wintering in Cellar

Directly under the bottling plant is an underground basement that is used for wintering bees. A truckload of bees can be backed in and unloaded, and to prove that this is not harmful, they wintered 100 per cent last winter.

My idea of a good bee cellar has no ventilators. They only let in outside air that makes the bees uneasy. Always avoid crowding. Whatever size the cellar, fill it only half with bees, or, in other words, have as much open space as there is filled space. Then if the cellar is reasonably frost proof, you are sure of good winter-

Leroy Keet's three-story concrete honey-houses, and home apiary, from the west. The bee-cellar is at th... the house and garage, Mr. Keet has six buil...

One of Leroy Keet's three-story concrete buildings. A side-hill construction is always an advantage for the honey can run from the extractors to storage tanks beneath, by gravity. Furthermore, loaded trucks may run directly on to both floors.

ing, if they have plenty of good stores.

The temperature should be about 42° F. If it runs higher, you probably have in too many bees, and will need ventilation by early March. I have four good bee cellars that winter 100 per cent. Bees will winter well out of doors, but I much prefer cellar wintering.

Colonies Sometimes Too Strong in Spring

Some years my bees are too strong, and I find it is not the strongest colonies that make the most honey. The colonies that reach their peak of brood rearing at the beginning of the clover honey flow do the best. Last year the colonies that had five frames of brood about May 15, produced more honey than those that had eight and nine. My plans for another year are to divide my stongest colonies in May.

Successful cellar wintering can not be attained unless the bees are properly prepared and intelligently put in and taken from the cellar. It is a mistake to leave them out late in the fall for that so-called last flight that sometimes results in a disagreeable job of picking them out of the snow. My motto is to put them in early and take them out early. If the weather is warm, I am careful not to set out too many at one time in the same apiary. Too many bees taking their first flight causes too much confusion and results in drifting. I find it is much better to set out 25 in a yard, and if you take them to outapiaries it is easy to distribute the loads.

We all enjoyed Mr. Root's visit, and we were highly entertained by scenes from his moving-picture machine which he carried with him. He also put the camera to work, and we have a promise of seeing some of ourselves in action when we visit Medina.—Leroy C. Keet.

is at th... ix build... in a side-hill. The house, not shown, is beyond the middle building, closer to the highway. Counting ...h are good sized three-story honey-houses.

I get numerous letters asking for information concerning beekeeping and as I have a large supply and it costs me nothing I am glad to part with it.

N. R. A.

Question.—"I am in a pretty kettle of fish. Of course I want to be patriotic for this is no time for slackers, but, as I am a beekeeper, how can I get my bees to co-operate and abide by the rules of the NRA? The queen is the worst offender. She works 24 hours a day, which is three times as much as she should work. The workers are not so bad but they work 12 hours per day. Now the drones are very patriotic and have accepted the code and signed on the spotted line. What can I do about it?"

Answer.—While you did not state what race of bees you have, yet from your letter I infer that you have either Italians, Germans, Caucasians or Carniolans. You can hardly expect real American patriotism from these foreign bees. Your problem is simple. Get pure American bees and you will have no further trouble. I refer to the bumble bee.

Question.—"I think we beekeepers should curtail production same as the wheat growers are doing. My neighbor is going to put in 25 per cent less acreage than he has for the past three years and says that I should do the same in honey production. I want to co-operate but have a hard problem. For the past three years I have had one colony each year. Three years ago my colony absconded; a guy stole the one I had two years ago; and the inspector burned up the one I had last year. Tell me how I can curtail production."

Answer.—Do as many other beekeepers are doing and keep your colony only 75 per cent as strong as it should be.

Question.—"I am a laboring man and am entitled to more pay under the NRA code, but I work for a beekeeper and have contracted to work for my board. What can I do?"

Answer—Eat four meals per day instead of three.

Question.—"I am worried what to do with my bees under the NRA code. My neighbor is raising hogs and is practicing birth control with them. He says I should do the same with my bees. How about it? What can I do?"

Answer.—If you use old queens your problem will be solved.

Question.—"I am up against it proper. To keep in harmony with the NRA I thought to raise the price of honey. Instead of charging more for my pound jars of honey I just put in 14 ounces. They fined me $300 and costs. What can I do?"

Answer.—Pay your fine, smile, and either revise your labels downward or your honey upward.

Question.—"About all my bees do is sting, and they refuse to sign the NRA code. A neighbor of mine has been badly stung and is suing me for damages. What defense can I make?"

The queen is the worst offender. She works 24 hours a day which is three times as much as she should.

Answer.—Your defense is easy. There is an old law which says, "A dog is entitled to one bite," which means that your dog is supposed to be a real nice dog which will just wag his tail when he comes to meet you and is not a bad dog till he has actually bitten you. When he has, it is

(Continued on page 636.)

From the Field of Experience

LONGEVITY FACTOR OF STRENGTH

Colonies Which Rear Most Brood Not Always Strongest

During the spring building-up period, we kept pretty close tab on the amount of brood in each colony, especially in package colonies, by estimating the number of square inches of brood in each comb, then multiplying by 25. This was done in order to get some data on the effective daily egg laying rate of the queens.

We have been surprised to find that it is not always the colonies with the greatest brood count which build up to the great strength in bees. Apparently, in some cases, colonies with less brood were the strongest. I can only account for this by a difference in longevity of the bees in different colonies. I strongly suspect that the bees vary a great deal in this respect, and that it is a point of great importance in selecting breeding queens. Of course, it goes without saying that the colonies with the greatest number of bees have been the best producers.

I do not know whether any scientific work has been done along these lines, but it has generally been understood that the average life of the bee during the active season is from five to six weeks. I know of cases where the bees have lived much longer than this, some of the original bees in package colonies being alive nine to ten weeks later.—Richard Hansen, Kenosha, Wisconsin.

HOBBYING WITH BEES

A Minister Who Finds Relaxation and Inspiration Among His Bees

It has often been said that every one should have a hobby to prevent life from going stale on his hands. Especially is this true of those engaged in sedentary occupations. For such, beekeeping offers plenty of opportunity for physical exercise, a wide field for scientific experimentation, as well as the possibility of adding to the family income. Few hobbies can do as much.

The writer is a Presbyterian minister who would much rather spend a few hours a week with his bees than play golf because he gets more out of it and can put more into it from every point of consideration. My 22 colonies of bees have given me a honey crop of about 2500 pounds of fine clover honey in addition to physical exercise and mental relaxation.

Rev. Clarence G. Langley is proud of the season's work of his best colony.

My interest in bees began at an early age. When I was about 17 or 18, the present editor of Gleanings in Bee Culture, Mr. Demuth, spent several weeks in my apiary conducting a series of experiments to determine the effect of poison spray during fruit bloom on bees. Those were inspiring days for me, and although it has not been my pleasure to see him since that time, "the memory lingers on."—Rev. Clarence G. Langley, Red Wing, Minn.

ECONOMICAL WINTER PACKING

Using Corrugated Paper Boxes for Packing Material Covered with Mulching Paper

There are many ways of packing bees for winter. Some are quite expensive or

require a great deal of time and labor, but I do not believe that many will go to great expense or waste a great deal of their time on this work with honey at present prices.

The last two winters have not been severe and in some instances bees that were not packed at all came through in fairly good condition where they went into winter with enough honey and young bees. But it takes more honey and the bees will not be so numerous nor as vigorous in the early spring. And we never know in advance when to expect a real old-fashioned winter with temperatures 20°, 30°, or even 40° below zero when the loss of bees without packing would be heavy.

The first step is to set four hives in a row close together facing the south with a row of bricks under the front and one under the rear of the hives. If I do not have enough bricks, I use lumber or fence posts. Then I take paper boxes that I get honey pails in, and cut them so that they will fit over the top, back and sides of the group of hives. If the hives are close enough together it is not necessary to have anything between them. I put on four or five thicknesses of the paper boxes and finish with a coat of mulching paper pasted together with roofing cement. Tarred paper can be used but mulching paper is easier to handle and goes much further. It does not become stiff and break when old like tarred paper. I like to have the paper come down part way over the front of the hives, but it is not absolutely necessary. The box paper may be stored in a dry place when taken off in the spring, and kept for another year. —P. Petersen, Kimballton, Iowa.

REALLY GOOD SIGNS PAY

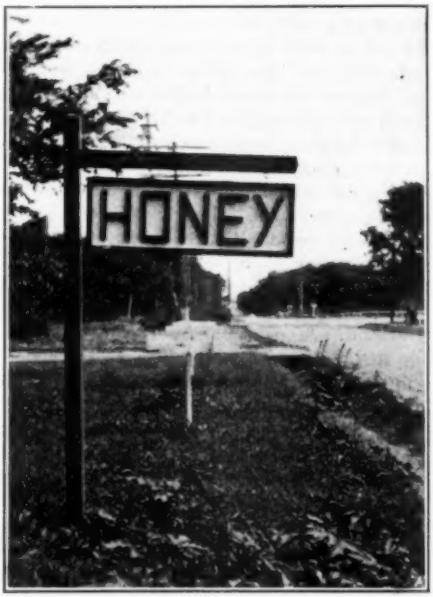
Not Just Another Sign, But One That Attracts Attention

Our place is at the edge of town on a stretch of graveled road. Two highways, the SYA and the KND unite for a few blocks passing our house.

It is a most excellent location for our business—for both local and tourist trade. But—there is much competition in the matter of signs at the edge of any town as any one who rides any distance knows.

So, of course, our sign must not be just another sign. It must be neat yet striking and capable of being read at a glance, to meet the demand of a busy world that wastes no time in traveling.

After much thought and planning, this sign resulted. It is my husband's work. The block letters are painted black on the faces and yellow on the sides, mounted on a gleaming white background bounded by a raised border painted black. This is securely fastened at a right angle position to a sturdy upright square post painted alternately black and yellow.



A neat, striking honey sign that can be read at a glance.

This sign stops cars from near and far —in fact, from all over the United States. So, it has proven itself to be more than just another sign on a much traveled high.—Mrs. Benj. Nielsen, Aurora, Nebraska.

SIMPLIFIED MANAGEMENT

Good Yields With No Capital Investment and But Little Labor

There are all kinds of beekeepers, but some fellows near here have a different system from any of which I have heard. There are three farmers interested in these bees, though there is but one colony. The bees are located under the schoolhouse. The entrance is a crack in the foundation.

When these beemen get ready to harvest the crop, they all three go to the schoolhouse—one armed with bee veil, gloves and slicker. He slides through a hole under the foundation, lies flat on his back under the combs, and, with a knife, cuts down the surplus into a dishpan on his chest. He is careful to leave enough for the bees, although the school board has asked them to kill the bees. These bees have been in this location four years and have produced from 8 to 12 gallons of chunk honey every year.

The fellow who crawls under says the reason for the slicker is that the honey keeps dripping down and the slicker is easily washed. He said he hasn't told the school board that they don't take all the honey.—J. H. Lutes, Stapleton, Nebraska.

SAFE QUEEN INTRODUCTION

Queen Caged Safe, Then Released Without Opening Hive

Here is a safe way to introduce a queen in the cage in which she comes. When you receive the new queen, go to the hive you wish to requeen, hunt up and dispose of the old queen, be sure that there are no queen cells, then close the hive.

Get a small sized wire one foot long and make a small hook on one end that will go through the hole in the queen cage. Remove the screen on the end of the cage and use the hook end of the wire through the hole to remove all the bees except one and the queen.

Make a small plug that will fit in the hole through which you have taken the bees. Fasten the wire to the plug and put the plug in the hole. Place the little screen that you removed over the hole that has the candy so the bees can not release the queen.

Lay the queen cage on top of the brood frames and put a small nail or tack in front of it so it will not pull towards you when you release the queen. Put a super over the brood-chamber and lay the wire to the outside of hive between the brood-chamber and super. Leave three and a half or four days, then pull the wire and release the queen. Do not disturb the hive for at least a week.

I have used this method for five or six years and have the first queen to lose.—C. L. Green, Fostoria, Ohio.

COMMENTS ON CURRENT ITEMS

We are told on page 522 that an unheated building, in which the temperature fluctuates with the outside temperature, is about as good a place for storing honey as the beekeeper can provide without considerable expense. I think that is true if the honey has been well ripened by the bees. The bee cellar may be a safe place for honey in sealed containers if the cellar is free from dampness.

As to stimulative feeding we have all our lives been of the opinion that an abundance of honey in the hives at the beginning of winter furnishes all the stimulation that is advisable or at all necessary.

The article on short crops in the clover region hit me right in the eye. The crop in this Niagara District will be about 25 per cent of the usual yield. Just as the bees had started in with a rush we had a week of abnormally dry weather, in fact, the greatest drouth for 80 years, the thermometer ranging from 85 to 103 degrees. After about a week of honey weather came the high temperatures and the clover heads turned brown within a few days.

In the matter of selling honey at retail, our sales have been away below other years. We have the same customers but they nearly all want smaller packages. Several years ago we kept on display at the honey stand the following sizes: the 6-ounce, 8-ounce, 12-ounce, the imperial pint, and the imperial quart. We first dropped the 6-ounce, then the 8-ounce, and finally all others except the pint. A little salesmanship convinced our customers that they were saving money by buying the pint size. We could buy this size in larger quantities and save our customers money. We would give three of them for the price of the No. 2 pail, and the pail held the same as three of the jars. Nearly all of them take the glass jars.

You say on page 523 that the greater part of white honey produced in the United States is from sweet clover. With us, sweet clover honey, when capped, is thinner than alsike or white dutch and weighs less per gallon. I have a letter from the Department of Agriculture at Washington saying that the standard has been lowered to 11 pounds 12 ounces to the wine gallon. The Canadian standard is held at 12 pounds to the wine gallon.

Long experience has convinced me that Professor Wilson is right on every point in his valuable article on the spoilage of honey, pages 530-532. We get our honey out of the tanks as soon as possible after extracting, put it up in 30-pound pails with tight-fitting covers, and store it in a building at the back of our town residence. We empty them into the double-jacketed heating tank as fast as we need them and heat the honey to 160° F., when we lift the honey gate and let the honey flow into the filling tank. By not letting the honey get exposed to the air, we retain the aroma and flavor. We find that honey exposed to the air tastes flat.

Doctor Phillips' articles on Russia are exceedingly interesting but the pictures say a lot. I read the other day about an English traveler who made a visit to the Soviet Republic. He was admiring a beautiful rainbow and called his guide's attention to it. The guide replied, "We have no time for rainbows." Looking at the pictures appearing in Gleanings we were led to ask, are there no smiles in Russia?

Listening to an address by Dr. Phillips, I was amused when he told of the difficulty of getting an interpreter who could translate his address into equivalent Russian. On one occasion, though, they secured a young Russian girl who had lived for some time in Chicago. When he asked if she spoke English, she replied, "You betcha life." First class Chicagoese, if not just correct English.—J. F. Dunn, Ridgeway, Ontario.

SPINSTER JANE SAYS—

Bees have many enemies; among them are the toad and the skunk. To both of these, bees form a choice delicacy. Jimmy Skunk loves bees dearly.

Last year the boy carried some hives into our first cellar, which we use as general store room for hives, extractor, honey cans, etc. Just like all male creatures, he left them "topsy-turvy," not neatly piled. A few days later he came into the house greatly excited, exclaiming, "Jane, there's a skunk in the cellar!"

Consternation reigned. John was all for killing him on the spot, but Sister and I strongly objected. We didn't want our cream and butter ruined and the home made uninhabitable, so Jimmy remained.

When we went through the first cellar to the second to get fruit, vegetables, butter, etc., we often caught a glimpse of a black and white streak flashing to cover. The outer door was left invitingly open, and we hoped he would one day take a yearning for his wife and family, and go visit them. But there was nothing doing in that line. Nasty old bachelor, or unfaithful old hubby that he was, he decided to desert his family and have snug quarters for himself for winter. There were chickens cooped delightfully near, and dead bees made a delectable tid-bit. But one night there came a light snow and we saw his tracks out, but not back in. Gleefully we closed the door tight. Jimmy had rejoined his family, we thought.

When evening came, we entered the woodshed when all at once my cat, sitting upon the doorstep, hissed and spat at something behind the step. On going to investigate, Lo! Jimmy Skunk returned!

We laid restraining hands on John, when he declared he would shoot the brute, and gave the boy the gun with orders not to shoot until out of our smelling zone. Then a queer parade began. Jimmy marched ahead, ready to stand, stamp his feet and do battle at any moment. Behind him, John, waving his arms wildly, and saying things. He thought it might work on the skunk, since he succeeds in persuading Sister that way. Then came the boy with a murderous look in his eye and the gun. Next Sister and I, waving our aprons to "shoo" him away.

Dispirited at the closed door, frightened at the flapping aprons, he moved smartly to the barn, then behind it, when sister and I fled. The boy fired, and Jimmy in yielding up his life, did his worst.

Shakespeare has one of his characters say, as he looked at the brightness of the stars, "So shines a good deed in a naughty world." Well, this naughty deed in a good old world smelled to heaven. For once I was air-minded—I want to go up for air. Occasionally to this very day when the wind blows from that quarter, we are strongly reminded of Jimmy.

And now for a suggestion! Why not use this skunk secretion in the next war! Would it not be quite as effective as tear-gas, liquid fire, etc.? Exploded in quantities or dropped in bombs before an advancing foe, what a retreat would ensue! But behind it, we would suggest bellows or great fans, that, boomerang-like, it could not return.—Spinster Jane.

From North, East, West and South

SOUTHERN CALIFORNIA.—A few very warm days with the drying up of the blossoms on the sages and wild buckwheat, brought to a close one of southern California's short crop honey seasons. As is always the case, there are exceptions. In the great irrigated valleys of Imperial and Palo Verde, where thousands of acres of alfalfa are grown, fair to good crops have been harvested. The lima bean fields of Orange, Los Angeles, Ventura and Santa Barbara Counties have been yielding some honey which will be very acceptable as winter stores for those who moved to these locations after the sage and wild buckwheat honey flow was past.

Offers on beeswax have been going up steadily and the market demand has improved considerably. Just why we can not have a duty of from five to ten cents on beeswax is a puzzle to many of us. There must be "a nigger in the woodpile" some place.

The honey market seems to be strong, but buyers are not inclined to connect with producers' ideas on prices. Some beekeepers are holding hoping to get their share of the advance in prices which is taking place along so many lines.

California Could Now Consume All the Honey it Produces if None Were Shipped Into the State from Outside.

Since starting this letter I have had one caller and one long-distance telephone call about honey. Roadside stands and small retail stores have so increased the sale of honey in California that we could consume practically all we produce if it was not brought in from outside places.

We see more and more references in the bee papers about the use of carbolic acid in the taking off of honey. Personally I think it is a mistake to give publicity to this method. If a beekeeper wishes to use it all good and well; that is his own business. But we already have enough pilfering around our apiaries without posting the crooks of another easy way to get honey without stings.

I saw an article in a bee journal lately that a certain honey had twenty times as much manganese and five times as much copper in it as some other honey. Now if we could find the kind of honey with even two or three times as much gold in it, well, that is the honey we are looking for out here.

Our most up-to-date beekeepers have already requeened all poor or otherwise undesirable stock. There is no better time to do this than when the crop is short and the beekeeper has lots of spare time. It is surprising how colonies with a young queen will boom in the early spring.—L. L. Andrews, Corona, California.

NORTHERN CALIFORNIA.—Beekeepers in all parts of California know approximately what they will have in the way of a honey crop for 1933. What they know is not at all encouraging for their crop is small. None of them seem to agree as to just why the crop is small. In a few instances a beekeeper can tell why he has a crop that amounts to just half what he expected. Some give reasons which a real beekeeper can not take too seriously. Strange as it may seem, beekeepers who know bee behavior and are posted on the source of nectar have the best crops. However, there is a hopeful side to the situation: prices for honey are on the up-grade. Some have received double the price they expected earlier in the season. This is encouraging.

Beekeepers Show a Fine Co-operative Spirit and Are Working Toward the Betterment of the Industry.

Beekeeping like all other industries has felt the effects of the depression. In no industry have those engaged faced the situation more bravely, and none look forward to the future more hopefully. We have a fine co-operative spirit among our beekeepers. This is noticeably strong in requests coming daily to the office of our state association for information concerning the NRA and a code for beekeepers and honey dealers. The queen and package bee dealers have formed their preliminary organization with Dr. Eckert of the University of California at Davis as secretary. The permanent organization will be in force before this appears in print.

Judging from the number of requests coming to our office for information concerning the working of our inspection law, we must conclude that such requests are more than idle curiosity. We are pleased to state that we still have the law and with H. M. Krebs as leader and the beekeepers' fine co-operation, California has a chance to get rid of disease that has been a hindrance to the industry. From the date of the enactment of the act we have had people claiming to be working in the interest of the beekeepers who have opposed the law. Some have gone so far as to oppose the law in the courts. Such attempts have proved unsuccessful. Only a few days ago the supreme court rendered a decision upholding the law. The great majority of our beekeepers are in favor of it and enter willingly in all moves for its enforcement. This makes it easy for the director of apiary inspection to plan his campaigns against disease, the result being that California is rapidly becoming a better place for better beekeepers.—Cary W. Hartman, Oakland, Calif.

ARIZONA.—Rainfall has continued light throughout August, though it has rained in fair amount in places. We have had considerable cloudy weather and but little rain for this time of year. Rains brought the sage up here locally and it is now blooming, but it is too hot and dry for it to produce any honey to amount to anything. Bees are trying hard to get nectar from the bloom but are having poor success. Should we have rain soon it will assure enough honey to carry the bees through winter.

Reports from the Salt River Valley producers indicate that they have had a good crop for the season which will perhaps run above the average. Some honey was stored from alfalfa after the spring flow was over, and some got a fair crop from cotton. Bees there should go into winter in good shape. Here locally bees reared brood heavily for July and August considering that there was no honey flow and have used up a large amount of the honey gathered after or at the close of the honey flow. One producer reported that about 75 colonies died out on the Gila River through July and August from heat or from going a long distance for water, he was not sure just which.

Most of the large producers have already disposed of their honey crop. By November I doubt that a carload of honey can be found in the hands of any one producer. All of the largest producers that I know of, have already disposed of their crop. The local demand for honey is holding up well also, and should continue so, if the price is not boosted too high at the start. It seems to me prices should be advanced along with the advance of prices in other lines of business.—Leslie Wedgworth, Oracle, Arizona.

UTAH.—The season has closed in Utah with little better than one-half of a crop. In this part of the state there has been no rain to speak of since May 20. Much of our surplus honey comes from the second bloom of dry land alfalfa, and it was too dry for both alfalfa and sweet clover to properly bloom and yield nectar.

I was talking to a beekeeper recently who thinks the honey business is about ruined since prices are so low, and it is so easy to extend the business with package bees. He thought that, since the government was cutting the supply of wheat and cotton, and was now able to practice birth control among the pigs, it should step in and control the supply of honey and set prices. It seemed that even hope had gone out of his Pandora's box.

There Are Many Indications That Prices of Honey Will Go Higher in the Near Future.

I told him that I felt more hopeful as the chain stores were asking more for their small packages, that while buyers were very diplomatic about making offers there were many more inquiries for honey than last year, that I already had inquiries for eight carloads, two of them comb honey, and that with increased employment and purchasing power I look for an advance in prices within 60 days.

With the crop below normal the country over we have nature, that great leveler, with her floods, foulbrood, hard winters, dry summers and discouraged beekeepers to help us out. It is up to us producers to push the sales, and not let jobbers and chain stores do all the price setting.

A word of caution to beekeepers in this part of the United States. On account of the continued drouth, there is no fall honey flow and there isn't going to be any. There is the usual amount of September

brood, and bees must live from now until spring on their present stores. So, keep watch or feed.—M. A. Gill, Hyrum, Utah.

SASKATCHEWAN. — Considerable change has taken place since my last report when a good honey crop was in prospect for the entire province. Roughly speaking, these early promises were fulfilled in the eastern half of the province, but in the west half and parts of the extreme southeast the honey crop is a total failure. In most instances bees in this area will not have winter stores. Cut worms, drouth and lastly grasshoppers are responsible for this condition and the countryside presents a sorry picture. Nor are future prospects bright as a still heavier outbreak of grasshoppers is predicted for next year.

A Bumper Honey Crop in Eastern Half Raises Average for the Entire Province to Normal.

The eastern half of the province presents an entirely different picture. Here 200 and 300 pound average yields per colony are being reported. Because of the high yields in the east the total crop of honey harvest in the province will probably be up to, or better than normal. One man whom I visited recently in Saltcoats had a scale hive which showed an average daily gain for a two-week period of over 10 pounds.

Recent rains in east Saskatchewan are freshening up late clover and nectar is still coming freely. We have had no frost as yet, and if it holds off for a week or ten days, colonies will gain another 50 pounds.

As the market was bare of last year's honey, the new crop is moving well at prices one to two cents above those of last year. Our beekeepers are also developing a market for their water white clover honey in Great Britain and are marketing an initial shipment of one or two cars. This is the first honey exported from Saskatchewan and is having a beneficial effect on the home market as beekeepers feel they can hold out for good prices from local buyers as they have the export market as an alternative.—R. M. Pugh, Regina, Saskatchewan.

COLORADO.—Those sections of Colorado which have suffered from drouth during the past two seasons, have fared more favorably during the 1933 producing season. The crop has been fair to good. North central Colorado, the hardest hit section during 1931 and 1932, has a fair or better crop considering the 10-year average. Bees will go into winter quarters in good condition so far as honey is concerned, but the winter loss will be above normal due to old queens. The number of queenless colonies is above normal. Due to drouth and depression, there has been a tendency to reduce outlay and attention to a minimum. This practice can not be condemned too severely, but the results will be felt materially.

Increasing Prices of Other Commodities Should Help Lift Prices on Honey. A Proposed Code for Honey Producers.

There is a suggested upward trend in honey prices which seems justified for two reasons. Prices have been unjustifiably low, and other commodities are on the uptrend. Added to these considerations, there are whispers becoming more audible of a honey producers' code under the agricultural adjustment act. If our whole recovery program is to function, we are already late in setting about the formulation and adoption of a honey producers' code. There are so many evils existing in honey distribution, that there are opportunities to correct them in a well devised trade agreement. The practices of price cutting and consignment selling can well be adjusted under the NRA. The question of curtailed production must, of necessity, receive close consideration to avoid if possible a processing tax to further raise the price to the consumer and reflect small benefit to the producer. If after thorough investigation, it is evident that a surplus of honey may exist over a five or ten year period, a trade agreement of curtailed production can be arrived at to hold over, by producers, the surplus for lean years or to destroy or to find other outlets than those at present known.

Plans are under way to give National Honey Week a good send-off in the Rocky Mountain Region. A radio date has been set aside for Monday, November 13, at 12:30 P. M. on station KOA Denver. Dr. A. P. Sturtevant of the Intermountain Bee Culture Field Station has been asked to appear on this program for a honey discussion.—Prof. R. G. Richmond, Fort Collins, Colorado.

WYOMING.—Speaking of varied conditions in honey flow, we have had them all in Wyoming this year. The flow locally was short but the colonies were ready for it, and we have extracted a fair crop. We use lots of supers and plan to put on as many as we think will be needed, then add one for good luck. Yesterday I was surprised to find the bees filling the good luck super, too. That often happens and a shortage of super room for a few days during a real honey flow means quite a loss to the beekeeper.

I am sorry to report that the honey crop is extremely short in most sections of the state. In Sheridan County one beekeeper who usually produces two carloads for export has extracted only 5000 pounds to date. Think of it! Conditions are just as bad in many other sections of the state too. Some beekeepers have quit their bees and have taken work in the harvest fields.

If the beekeepers can get a fair price for what honey they have it will help some. They should all band together under the insignia of the "Golden queen" or "Crimson drone," and demand a square deal. There are lots of blue eagles around and I am wondering how the beekeeper will be benefited.

Local sales are slow and there are some stores in town with empty honey shelves. They refuse to buy just now, so they must be waiting for some hot shot to drive in with a truck load of honey that will be unloaded at a loss.—C. H. Gilbert, Laramie, Wyoming.

BRITISH COLUMBIA.—It is still too early to give returns for the season, as a large proportion of the crop has not yet been removed, and a great deal depends on the weather conditions in these last few weeks of the honey flow. The actual honey in sight is not nearly so plentiful as last year, but this is owing to the somewhat large losses sustained during the winter.

A Great Variety of Flavors in Honey from Wild Flowers in Portions of the Province Suggests Possibilities in Blending.

In British Columbia there is a varied selection of unusually delicious flavors of honey produced in the different districts. In the large one-crop areas such as alfalfa, fireweed and sweet clover, the flavors are what can always be expected. But in the more wooded and wilder parts they are always more or less of a surprise. Some years maple is the predominating factor, others the various wild fruits, all according to weather conditions at the time. Naturally, large commercial apiaries could not be run in such districts, but smaller yards of 20 to 30 colonies have a tremendous asset in all these wild things. Maybe one day in the future some beekeeper with foresight and initiative may make a specialty of collecting these delicious honeys and produce a super blend which would appeal to connoisseurs the world over.

There is no doubt that the extensive advertising and publicity on the uses of honey during the last few years has had the effect of making the general public more "honey conscious," and that total ignorance of the uses and benefits of honey, together with its production, is no longer so widespread. It is surprising what a beneficial effect a series of such enlightening articles in the public press have on a large part of the general public. Honey is asked for in an intelligent manner and its various points are discussed and understood. In this age of advertising, even honey with all its natural assets, can not afford to be too modest and retiring; and when it is fully realized that its general use is a real benefit to mankind, every effort should be used to spread the good news.—Florence A. Greenwood, Victoria, B. C.

TEXAS.—The weather during the month of August was very much to the advantage of the bees. The long drouth of nearly a year which was broken the last week in July had brought on conditions which resulted in about half a crop. A majority of the commercial beekeepers in southwest Texas had already taken the honey crop and supposed that they were through for the year. With the coming of the rains, all of the semi-arid plants which had been deprived of their blooming period so far this year, came into bloom. As a result, over a large section of the state as much honey has been stored since the first of August as was previously stored within this year. The amount of rainfall of August is sufficient to make a good growth of winter annuals which in turn will result in the building up of a strong force for spring work. It

will also aid largely in the growth of all of the spring honey plants.

The quality of the honey which is stored in the latter part of the summer will prohibit some beekeepers from removing quite a surplus which might be taken. Beekeepers are finding that quality brings more than quantity, and many of them are not mixing their spring and fall crops because of the difference in quality.

Prospects Are Good for a Fall Honey Flow from Cotton in Certain Districts Where Rainfall Has Been Heavy.

Reports coming from the cotton districts show that the crop is spotted. Some beekeepers report a good honey flow and a good surplus, others report a small amount. The cotton-leaf worm defoliated the entire section as far north as Austin during the week of August 25. However, the same week torrential rains fell all over this whole section. This means that by the middle of September the cotton will have quite a good growth and a "top crop" of flowers is assured. This generally means a fall cotton honey flow.

Due to a number of years of crop failures and low prices, and stimulated by the prospects of a rise in price and the back-to-farm movement, there is a great deal of activity among the owners of bees. Quite a number are buying bees while others are selling. This movement is a good one as the bees are rapidly passing into the hands of trained bee men who are expecting to work the bees intensively throughout the year, thus placing honey on the market at all times at a price which will be attractive to the housewife.

For a number of years beekeepers in southwest Texas reported sudden and heavy honey flows during the month of August, and all that could be told was that the source was a little sage plant. About the middle of August the writer visited the sandy section of southwest Texas and was very much surprised to find the bees working on *Croton lindheimerianus* Scheele very heavily and over a large section of country. This solves the problem of the pea plant that has given the honey flows over much of southwest Texas. The bees were working not only the flowers themselves but extra-floral nectaries located at the base of the flower stems.—H. B. Parks, San Antonio, Texas.

IOWA.—The season of 1933 will be remembered a long time by producers in this state as it opened exceedingly favorable for the spring building-up of colonies and honey plant conditions were very good. However, the drouth set in by June 1 and continued throughout June and July. It is during this period that the main honey crop is obtained from the clovers principally, and it seemed to every producer that each day might be the last of the honey flow. It was never heavy at any one time, but in spite of the drouth, it continued. The total honey crop in a good many instances was about normal. It was certainly evidenced that sweet clover can withstand almost unlimited drouth and produce nectar which will make a profitable honey crop. White clover did not yield extensively and basswood was very scattered, although this could be expected since last year was a predominating basswood year.

There have been a few interesting reports from reliable sources that bees did actually obtain nectar from alfalfa this year. Undoubtedly this was due to the extreme drouth and excessive heat. These reports of honey from alfalfa were from widely scattered areas within the state. Just now Hubam clover which is at its height, is yielding nectar and will undoubtedly continue until killed by frost. Late summer conditions have been very favorable for Hubam clover.

Some Definite Improvements in Management Are Becoming More and More Apparent.

There are some tendencies among producers which are crystallizing into rather definite directions. The value of young queens of good stock is being appreciated more and more, and a good many producers are getting good queens at the head of every colony. Closely associated with this is the idea that it does not pay to winter any colony of doubtful strength, but that it is better to unite the bees in such a colony after the queen is killed with some good colony for wintering purposes and depend upon artificial increase next season.

Another tendency which is becoming pronounced is the increased trial of Caucasian bees. This race has given very satisfactory results wherever a generous trial has been made with them. Their gen-

tleness and their hardiness appeal to producers in this state.

The program over WOI which has become a regular feature of the station and also a regular feature for the producers of the state, started on September 11 and will continue each Monday noon as heretofore for a period of 12 weeks, the last broadcast being given on November 27. These broadcasts are made available in mimeographed form to producers who request them.

Due to the restricted funds for apiary inspection, trial is being made by local volunteer inspectors. In the two cases selected for trial, satisfactory results have been obtained, and it is barely possible that this system will be extended as a means of keeping in touch with the disease situation in the field.—F. B. Paddock, Ames, Iowa.

NORTH DAKOTA.—At this time (September 8), the main honey flow for the season appears to be over, but it is probable that there will be a light intermittent honey flow for a few weeks yet from late sweet clover bloom and other autumn sources. Colonies appear to be in satisfactory condition for this time of the year. A rainfall of a little over one inch which occurred on August 23 and was fairly general over a large area of the state, did much to improve the honey flow, which just prior to that time was very unsatisfactory. Light rains have fallen from time to time since then which have put the fall sources of nectar in fairly good condition. The state, however, is greatly in need of heavy rains this fall, not only to make up the present deficiency, but also to put the soil in proper condition for plowing. From January 1 of this year to August 31, the rainfall has been 6.73 inches below normal, according to the local United States Weather Bureau.

North Dakota Honey Was Brought to the Attention of Members of the American Bankers' Association at a Recent Meeting in Chicago.

During the past season, honey from North Dakota has been featured in various ways. The North Dakota Beekeepers' Association furnished both comb honey and extracted honey for the banquet dinner of the delegates who attended "North Dakota Day" at the World's Fair in Chicago. Mr. A. G. Arvold, who was in charge of the day's program, told me that the honey was served along with hot biscuits, on the menu, and was thoroughly enjoyed by everybody.

Recently a quantity of honey in two-ounce jars was sent to the American Bankers' Association for their convention, together with a statement of the economic importance of the honeybee. The opening line of the statement accompanying each jar was, of course, directed to bankers. It began as follows: "When business is poor and loans are hard to collect, remember the honeybee. . . . It must visit more than three million blossoms to get a pound of honey and then doesn't get the honey." The Greater North Dakota Association was the donor of the honey for the American Bankers' Association.

Of late the atmosphere has been laden with smoke from the forest fires which are burning in the vicinity of the Lake of the Woods, about two hundred miles northeast, in Minnesota. According to reports, the fires are spread over an area about 40 miles square and are destroying valuable tracts of timber. Recent rains have failed to clear the air of the smoke. Air pilots of the Northwest Airways have reported that they were obliged to fly at an elevation of more than one mile to get above the smoke zone.—J. A. Munro, Fargo, North Dakota.

WESTERN NEW YORK.—At the present time (Sept. 10) we are experiencing a heavy honey flow from buckwheat and goldenrod. Buckwheat is giving an unusually long period of secretion. Owing to the drouth during July, many fields that were seeded at the usual time—about July 1—did not germinate until after the rains began about August 1. Consequently these late fields are still in their glory.

Honey is selling well at about 20 per cent above last season's prices. The fruit crop in this district is good and is selling at prices much in advance of a year ago. Growers for the first time for a number of years have a little money above the cost of production. Peaches have brought the growers above a dollar a bushel f. o. b., and the entire crop has been harvested, while last year there was no market at any price and millions of bushels were wasted.—H. M. Myers, Ransomville, New York.

WISCONSIN.—Late reports on the honey crop in Wisconsin indicate that earlier reports of below normal production are correct. The production is very small. While a few of our beekeepers have secured a normal average crop or better, many have secured less than one-half crop, and but few farm beekeepers will have any crop at all.

Three Years of Drouth Have Resulted in a Change in the Character of the Honey.

One interesting development in connection with this year's crop is the wide variation in color and flavor, due to many sources of nectar. The nectar sources have changed materially, due to the three years of drouth, and many strange flavors have appeared that so far have not been traced. The unusual production from alfalfa has produced quantities of almost pure alfalfa honey. The production of sweet-clover honey has also increased, while there is little or no honey from alsike and white clover.

This year's honey granulates quickly, and chemical tests for the comparative amount of levulose and dextrose shows that there is a decided tendency for a preponderance of dextrose sugar over the levulose.

Alsike and white clover have come back fairly well this year, and with favorable climatic conditions, may produce an average crop next year.

The principal topic of conversation at beekeepers' meetings is the price and the possibility of securing an improvement in prices through government operation in connection with the National Recovery Act. An effort is being made by the officers of the League to bring about an improvement in honey prices through the NRA, and it is possible that a national meeting will be called within the next month for a discussion of the question.

One of the difficulties which our beekeepers seem to be facing in Wisconsin is the competition from the chain store units. The prices influence the market to a very large extent, and it is almost impossible for beekeepers to build a higher price range. This may be something which will have to be taken up in a national way to improve the general price situation for honey. Possibly this is something that can be handled through the NRA.—H. F. Wilson, Madison, Wisconsin.

MICHIGAN.—The drouth continues in most sections of the state. Fall flowers are yielding enough to keep the bees brooding in good shape, but little surplus is being stored except where scattered showers gave a little relief.

Inquiries are stronger for honey from outside the state than any previous season. Reports are received of three carloads of white extracted being sold at 6 cents f. o. b. shipping point, and some of the large producers are holding for higher prices. Several lots of No. 1 white comb honey have moved for $3.00 f. o. b. shipping point, with the heavy fancy selling for $3.75 a case. Judging from the heavy inquiry from outside, these prices are due to rise. So many producers soured on 5-cent comb honey last year that, aside from the drouth, comb is quite scarce.

The many forest fires in northern Michigan threaten some of the outapiaries located in slash country. The fires are the worst in years and nothing but general rains can stop them apparently.

Emrick Kocsis, Detroit, father of the amateur golf champion of Michigan, "Chuck" Kocsis, again won sweepstakes at the State Fair Honey Show at Detroit. Wallace Greenleaf, Muir, and Wm. Blake, Port Huron, took second and third places. The show is very good considering the drouth and the fact that the exhibitors had only two weeks to get their displays ready. The fair this year is not financed by the state but by a group of business men who kept the fair alive by putting up their own money to run it. Mr. Kocsis, by the way, is the father of an exceptional family of seven boys and five girls. The seven boys are all good golfers, and Mr. Kocsis says that he is certain that their honey diet accounts for their good health and keenness in sport.

Mr. Blake introduced a novelty in honey serving here at the Fair. He is selling creamed honey in ice-cream cones, with a maraschino cherry on top. They go pretty well. Mrs. Sands, of Saginaw, another exhibitor, is again offering her specialties in honey candies, for the eighth consecutive year.

Several out-of-state beekeepers are looking for new pastures in Michigan. They must have a clean bill of health and use judgment in observing the rights of resident beekeepers in already established apiaries, or there is certain to be a private war on these unbidden guests.—R. H. Kelty, East Lansing, Michigan.

NORTHERN INDIANA.—With exceedingly hot weather and no rain in June, and with little rainfall throughout the summer, the honey crop of northern Indiana will be very light. In fact, the bees gathered no white clover honey and only about one-third of the normal amount of sweet clover. There are exceptions, of course, in favored spots where local showers occurred and where there were large fields of sweet clover.

In view of the local shortage and the reported short crop throughout the whole country and the general advance in the cost of most foods, it is believed that prices should rule considerably higher than last year. There are, however, some beekeepers who will persist in selling at half of the cost of production. It would help greatly if producers who are informed as to market conditions would get next to the uninformed and insist on co-operation in securing a fair price. In many cases, a county meeting to determine local prices would be advisable. Price cutting is often, if not usually, the result of ignorance which may be overcome if one is sufficiently diplomatic.

Importance of Informing Beekeepers Regarding Honey Crop and Market Conditions to Reduce Price Cutting.

With cool nights and warm days for the last two weeks, the weather has been favorable for the honey flow from goldenrod. This flow began about August 20, two weeks earlier than usual, and the bees are busy in the lowlands gathering in this nectar. If we only could get rain and continued favorable weather, a considerable amount of surplus might still be secured. Early upland goldenrod in this locality seldom yields nectar, but with favorable weather conditions, we are almost sure of a fall honey flow every year from this source where bees have access to river bottoms or other low lying areas.

In our 150 colonies, spring count, there have been no swarms this summer. We attribute this largely to weather conditions and lack of honey flow, but also to a considerable extent to queens bred from non-swarming stock. In fact, we have had fewer swarms each year for the last four years which would seem to indicate that careful breeding from colonies that do not swarm, may be to some extent effective.—E. S. Miller, Valparaiso, Indiana.

WESTERN OHIO.—This has been the poorest season in northwestern Ohio for more than 30 years. I have made quite a survey through this region and have talked with scores of beekeepers. Some report an average of about 30 pounds per colony. The average in our apiaries was about 40 pounds of surplus after leaving with each colony about 45 to 50 pounds for their winter stores.

If we should get a fall honey flow, we could make a better report but we do not depend on that as in most of our locations we do not have a fall honey flow. Some report a good honey flow from heartsease in some localities and in some sections there will perhaps be some asters. In Paulding and Defiance counties, quite a large acreage of buckwheat is grown and some beekeepers there report a good flow from that source.

Colonies are in very good condition with plenty of young bees and sufficient stores where beekeepers practice the two-story system, leaving a full depth super of honey; but we fear that when this is not practiced and colonies are left in single hive bodies, feeding will have to be done where there is no fall honey flow.

As a Result of the Short Crop, Beekeepers Have Had Time to Put Their Colonies in Good Condition for Next Year.

Beekeepers had plenty of leisure time this summer so they made the best of it in getting their bees in condition for next season by removing all old and failing queens and replacing them with young ones from good stock.

One interesting thing came to our notice this season. In every case where colonies were headed by daughters from imported stock, they gave from 20 to 25 pounds more surplus per colony than the American Italians. Other beekeepers in this region report similar results. We hope to introduce queens of this strain in all our colonies another year. We believe that this strain is far superior to the yellower Italians.

Most beekeepers are through extracting. We are about half through. Honey is of good quality and should command the very best price. Beekeepers are generally holding their honey for higher prices than are offered at present.

Our next big job will be packing the bees for winter.—Fred Leininger, Delphos, Ohio.

ONTARIO.—Some light rains have broken the long drouth locally, but we have not had a real soaker since early in the season. Other parts of Ontario have been more favorable while still others are in much worse shape than we are here in York County. The light rains brought on much of the buckwheat that had been lying dormant in the dry soil, and, as the weather has been warmer than usual, a light flow from buckwheat has continued right up to September 8 in some of our apiaries. The buckwheat crop is light and very spotted. Three of our apiaries have not had a super on since the clover honey was removed, while two others that usually produce but little buckwheat, have a crop above the average. All told our buckwheat crop is little over half of the usual amount, but brood-chambers appear to be heavier than usual so feeding will not be such a big problem.

At the apiaries that were given no supers, hives are simply plugged with honey in many cases. The slow, long honey flow of five weeks or more has crowded out the queens and the bees have filled the space usually occupied with brood. Last week I examined a dozen brood-chambers in an apiary, and in each I found almost identical conditions. In a 10-frame hive, six and in some cases seven combs were actually solid with honey. The remaining three or four combs had a small semi-circle of brood not more than six inches wide at the center of the brood area and less beyond. Some did not have a brood space more than four inches wide.

Honey has been selling freely locally and in a wholesale way. Sales are averaging at least a cent per pound over last year's figures. During the past 10 days, buyers representing one of the big chain stores of the Dominion have called, eager to buy honey. This is a new thing. Beekeepers have been chasing after buyers for the past year or so, and it is refreshing to have things reversed. Just yesterday I could have sold 25,000 pounds of buckwheat honey to a chain store at a figure away above what we received last year.

Some Arguments Against Wintering Bees in Two-Story Hives.

Many people write and ask me and others ask when I meet them, why we continue to feed quite a lot of sugar for winter stores when dark honey is cheap and sugar dear. A number of reasons can be given. Even if not convincing to the questioner, they seem quite valid to us with our present understanding and circumstances.

In the first place, we have been bothered a lot with foulbrood. Although half or more of our apiaries have not had a single case for years, yet a "burnt child dreads the fire," so we hesitate to feed honey indiscriminately. Why not use double brood-chambers or at least a shallow body commonly called a food-chamber? Frankly I dislike two sets of combs in a brood-chamber for various reasons. Most of our winter cases would not take two stories and allow enough packing on top, but they would accommodate a shallow body. In the spring we find that it takes every hour we can get when fruit bloom is on, to examine every brood-chamber before the bloom is over and work becomes impossible with the bees. With two brood-chambers, we could never get through all the colonies. I infer that all who use two-story hives do not clip queens or examine all brood nests. If there is no disease in the community that would make a different story.

I may be a heretic, but I am yet to be convinced that bees winter as well and with as little food in two full-depth bodies as they do in a single body made about solid with stores in the fall. To ask which was the strongest and best colony among nearly twenty apiaries would be a question hard to answer. But if any of our boys were asked that question this year, all would think of a colony that wintered last year on seven Langstroth combs and this year was among the few sky-scrapers. Almost solid with stores last fall this colony appeared to have used very little stores during the winter and it built up very strong this spring with not an ounce being fed to it. No brood rearing was possible during our mild winter, at least in early winter. Stores were saved and vitality of the bees preserved.

I do not know how large a hive would have to be so that bees would not winter in it, but I believe that the more compact a brood-chamber is in the early winter, the less stores will be consumed and the better the bees will winter. This is my view even while admitting that many better beekeepers than we are using the double brood-chamber successfully.—J. L. Byer, Markham, Ontario.

Heads of Grain from Different Fields

Smoker Fuel

Clean cotton rags that have been dipped in a salt peter solution, make excellent smoker fuel. Use one tablespoon of salt peter to one gallon of water in preparing material for fuel. Fuel, thus prepared, never bursts into flame, no matter how vigorously the smoker may be used. —Mrs. Benj. Nielsen, Aurora, Nebraska.

Calcium Cyanide for Wax Moth

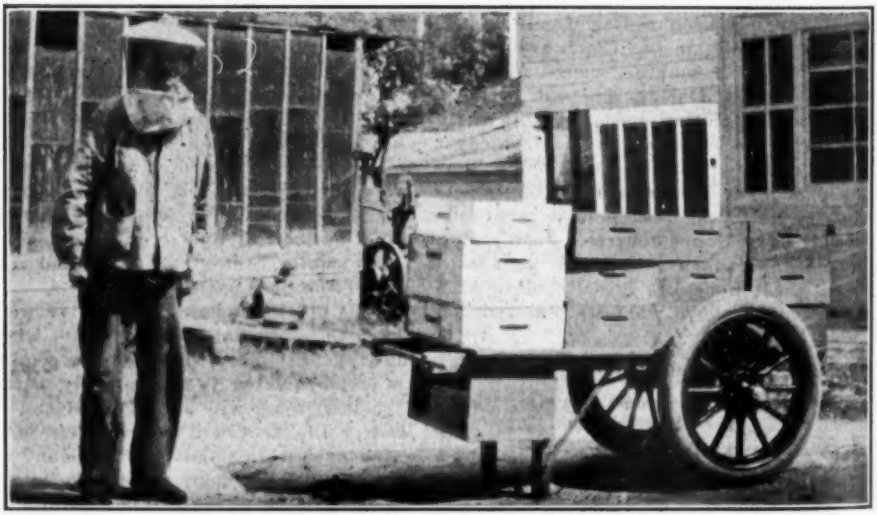
There is a form of cyanide used for greenhouse fumigation called G Grade Cyanide. It comes in a grayish powder and is used very effectually against insects in the greenhouse, so I tried it out on the larvae of the wax moth and find it very effective. I stack up the hive bodies containing infested combs six or seven high on some damp spot on the ground. Dampness helps the action of the cyanide. Then in an opening in the lower hive, which ought to be empty, I put in one or two spoonfuls of the cyanide powder and that is the end of the larvae.—Irwin E. Miller, Salisbury, Pennsylvania.

Cart for the Apiary

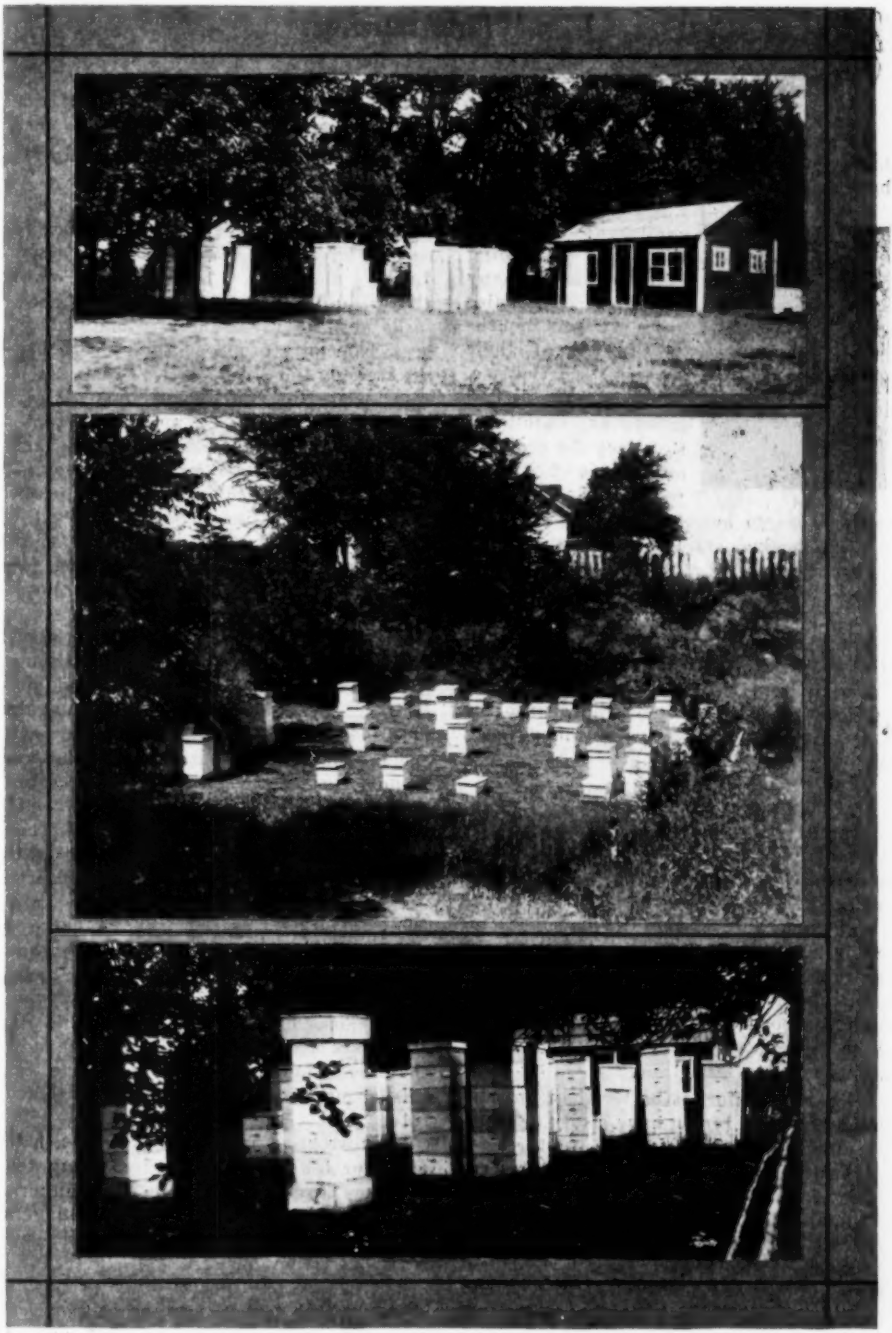
I am sending a photograph of a pneumatic wheelbarrow I made and have used for 10 years. I find it is a great help. It is not heavy or clumsy. The box underneath holds smoker, hive tools, and fuel. I built it out of scrap found lying around. I used two front axles and wheels of an old Ford car. The axles have plates at top and bottom to keep them square.—G. E. Moss, Souris, Manitoba.

Bees Baffle Royal Mounted Police

I was looking for queen cells in a strong colony of Italians one fine day in June preparatory to putting on the first super of the year, when a car turned in from the road and pulled up at the gate. From it there descended a stalwart constable of the Royal Canadian Mounted Police, but he came no nearer. For the first time in my life, I saw a member of this historic force nonplussed. The man upon whom he had to serve a subpoena was in the midst of a guard armed with weapons against which the "Scarlet Riders of the Plains," have no defensive armour. And the policeman had to cool his heels while I serenely completed my job, closed up the hive and walked to the gate to receive the summons. The motto, "Get Your Man," applies to an Italian bee as strongly as to the Mounted Police.—Fred Wakeman, Punnichy, Sask., Can.



G. E. Moss, Souris, Manitoba, and his handy cart built especially for apiary work.



BEEKEEPING IN OHIO STATE UNIVERSITY

Upper—Experimental apiary in northwestern Ohio during a good honey flow. Middle—Apiary at Columbus used by students in beekeeping at the University. Lower—Another view of the apiary shown in upper picture.

Food Department

Malitta D. Fischer

National Honey Week

In about six weeks we will be observing another National Honey Week. The beekeepers have many loyal friends in food companies, equipment organizations, and publishing establishments; many of these companies have written months in advance of their plans to participate. The commercial groups are enthusiastic about the program and it is fortunate for us that they are so anxious to help.

Some beekeepers, too, have plans underway; those who started early will get much of value from National Honey Week. If, somehow, the time has slipped by without your realizing the National Honey Week is so near, you can still participate. Perhaps these last minute suggestions will serve you in sponsoring some type of local National Honey Week activity.

Remember November 13 to 18

The dates are November 13 to 18. Make them known to every one in your community. Get your local paper to carry an announcement of the dates several weeks in advance and let the announcement include something to arouse the curiosity of the citizens in your community. Post an announcement of the dates on all public bulletin boards as well as notices from time to time covering the activity being sponsored.

Organized effort is better than individual promotion. If you have a city or county club of beekeepers, try to get them together to formulate plans for the observance of National Honey Week. By having a number of beekeepers work together, special responsibilities can be delegated to teams of two or three, and a great deal more ground can be covered by such collective activity than if you proceed alone. Suggestions will be given to those who are forced to work alone. First, however, we will consider the program a county club or city club can sponsor. Just suppose there are twenty beekeepers in your county ready to go ahead on the National Honey Week Program.

Suggestions for Organizing a Group of Workers

Two of them will form a team to contact important grocery shops for the purpose of having those grocers set up honey displays and feature honey in club offers all during National Honey Week. Window cards and Honey Leaflets to match have been especially prepared for groceries by the Kellogg Company, Battle Creek, Michigan; write for your supply immediately. Suggestions for setting up such exhibits, what and how to display the honey and honey items, details on club offers, all these and other suggestions are to be found in an outline especially prepared on the subject by American Honey Institute. This outline is for sale at cost (10 cents for set) by American Honey Institute.

Another team of two will make it their business to contact all bakers within a given territory. There are splendid possibilities in this connection. Here again detailed directions are to be found in a special outline prepared by American Honey Institute on the subject. Again the cost is 10 cents. Your third team would work with restaurants and hotels. That team can get the outline on their program from the Institute for 10 cents. A fourth team would contact candy shops, and what an interesting field this is. There is a page of suggestions on this program, too. The fifth team would work with druggists and you'd be surprised what a wonderful piece of work this team could do. Druggists are much more receptive now than ever before. Get your outline for this group for cost, too, from the Institute.

Now we have five teams of two each to work, or ten persons. The remaining ten can form teams of two to see that bankers, cosmeticians, dietitians, theater managers and teachers all do their part to observe National Honey Week.

Then there are special other groups to contact. Such groups are parent-teachers' associations, women's clubs, Rotary and Kiwanis clubs, dramatic clubs, household chat directors for local radio stations, florists, etc. Briefly, you might get your parent-teachers' association to hold a

meeting during November 13 to 18 and have the entire program devoted to bee-and-honey talks, the lunch to be served to consist of honey combinations. I know the members of parent-teachers' groups would like that.

Cosmeticians would want the directions for honey facials and honey packs so they could feature them during National Honey Week. Dietitians could be induced to have honey service on their food trays that week. Theater managers would appreciate an invitation to help. Some local group might give "Drama of the Bee Hive," or show the government film, "The Realm of the Honeybee." These features would be added to their regular program and the patronage would appreciate the theater's observance of such a national program.

Teachers are in position to co-operate in many ways. If they are home economics teachers, their classes in demonstration cookery could put on a competitive series of honey demonstrations, the local beekeeping club should see to it that some sort of prize is available for the team that puts on the best honey demonstrations. If teachers in nature study wish to respond, they will want some beekeeper to talk to their class members on bees and honey. The superintendent of the school might call a general session so that all students could be shown "The Realm of the Honeybee."

In addition to the Institute Outlines for special programs on most of these subjects consult your past numbers of Gleanings in Bee Culture of the current year for further details. You will find in these numbers the following:

March, pages 170, 171, 172, 187—Suggestions for getting honey in the restaurant and soda fountain. Recipes specially adapted to these are included.

April, pages 234, 235, 243, 244, 246—Suggestions for getting the baker to use honey.

May, pages 294, 295, 306, 310, 315, 316—Suggestions for getting the hospital dietitian interested in using honey in the diet kitchen.

June, pages 362, 363—Suggestions for contacting newspaper and magazine writers. Don't forget that last year beekeepers in 46 states helped to get bee-and-honey items in over 1000 newspapers during November due to the concentrated effort they sponsored for the 1932 National Honey Week. How much press co-operation will you get this year?

July, pages 429, 430, 431, 437—Suggestions for booths at fairs, festivals, community food shows, etc. These suggestions will help you in setting up any type of exhibit.

August, pages 493, 494, 495—Suggestions to help you get school forces and school children interested in honey and observance of National Honey Week. Schools offer splendid possibilities in this connection.

September, pages 559, 560, 561, 570, 571—Suggestions to help you train persons who expect to sell honey.

Suggestions for Those Who Must Work Alone

If you can not get teams of beekeepers formed to assume various responsibilities in promoting National Honey Week, please try to do something alone. Individual effort can be very successful in securing the co-operation of local groups to observe National Honey Week. Just what type of the program you sponsor depends entirely on your local conditions. Perhaps you know more grocers than you do druggists, or perhaps through your friends you can work more quickly and more satisfactorily with the bakers and bankers in your community. I would say, work with those types that you can do most quickly and get the greatest amount of enthusiastic co-operation. Your time is limited and so in order to cover the greatest territory single-handed, you had best take those groups that you can handle with least resistance.

Please don't forget the homemaker. Try to do something in a personal way for her. Perhaps you have a good home service department in your local gas or light company and the director of that home service department conducts cooking schools. If she does, get her interested in having a honey demonstration for the cooking schools that are held during November 13 to 18. One cooking school instructor who is still Home Service Director for a large utility company, arranged for honey demonstrations during National Honey Week last year and reported demonstrating honey dishes to more than 3000 women who came to the schools just during that week. More than 10,000 honey recipe cards were printed by that utility company for that home service director

(Continued on page 637.)

Talks to Beginners

Geo. S. Demuth

In most of this country and in Canada, the season's work with the bees should be finished this month. As autumn advances, the bees become less and less active. Whenever the weather is suitable they gather a little nectar and pollen from late flowers where these are available, and they often work on aster for several weeks after the frost has killed most other late flowers. As a rule, the amount of nectar the bees obtain in October is meager, especially in the North. The amount of brood is gradually decreased, and in many northern localities the queen stops laying entirely some time during this month.

The Broodless Period

The beginner who examines his colonies at intervals this month will be interested in noting the manner in which the bees prepare for winter. They behave as though they knew that the weather will soon turn cold, although none of the bees of the colony has ever experienced a winter unless it be the queen. They close cracks in the hive with propolis and arrange the stores of honey close above and around the diminishing brood-nest where it will be within reach when they are compelled to huddle together in a compact cluster to prevent being frozen to death. They varnish over the surface of the sealed honey evidently with a mixture of propolis, which helps to prevent the absorption of moisture by the honey during the winter. As each cycle of brood emerges, the brood area on each comb is reduced and the adjacent vacant cells are filled with new honey if any is being stored; if not they may move honey from the more remote parts of the hive to these vacant cells, thus bringing about a snug condition for winter.

In some northern localities, the queens cease to lay early in October, but in many cases brood rearing is continued to a limited extent through the month. In the South, brood rearing is continued in many cases through November. If the colonies winter well, they do not again rear brood in the North until March, but if the winter is severe and the older bees die off rapidly, they may begin to rear brood again, even in January in the North. In the South, brood rearing is continued later in the fall and is usually begun again in January or early February. As a rule, the better the bees winter, the longer the broodless period.

Beginners will notice a remarkable change in the behavior of the bees as the weather becomes cooler. They appear to be quite sluggish or sleepy. Individual bees often remain apparently motionless for days at a time. Their output of energy is so reduced that they consume a surprisingly small amount of honey, especially during cool, cloudy weather late in October and through November and December. It is by this means that bees are able to prolong their lives to span the broodless period. If they lived only as long during the winter as they do during the active season, all the bees would die of old age before Christmas. During the summer, the population is kept up by extensive rearing of young, but during the winter, the population is maintained by prolonging the lives of individuals through the unusual means of remaining quiet. They live so slowly they do not age materially until they become more active in the spring unless compelled to become active in order to keep warm or because of some disturbance.

The Winter Cluster

By peeping into the hive on a frosty morning, the beginner will note that the bees have moved away from the corners of the hive, and have formed a cluster somewhat spherical in shape. If the hive is single-walled, the cluster is smaller and more compact than if the hive is double-walled. This is the winter cluster. It becomes smaller and more compact as it becomes colder, and expands as the temperature rises. Thus the temperature within the cluster is maintained high enough to prevent the bees from becoming numb with cold. If the colony is strong enough to make a good-sized cluster occupying the space between at least seven or eight combs, if the bees are not too old, and if the winter cluster can be in continuous contact with honey of good quality, the colony can survive even the severe winters of the far North out in the open.

Smaller colonies have greater difficulty in maintaining the required temperature during severe weather. Therefore, it is often advisable to unite two or more

small colonies to make one strong one for winter. Colonies that occupy only three to five of the spaces between the combs on a chilly morning are too weak for safe wintering in the North, but by putting two or three such colonies together as described in these Talks last month, the chances of safe wintering are greatly increased. If the uniting is done late this month after brood rearing has ceased, it is not necessary to use the newspaper in uniting. Instead, two or three small colonies can be put together directly without any trouble from fighting. If the colonies are quite small, the combs not occupied by bees can be taken from one hive, then the group of combs on which the bees are located in the other hive can be lifted as a unit and set in place so that the bees of one colony will be in contact with those of the other. No attention need be paid to the queen unless one of them is inferior. In this case it will be well to find and kill the poor queen on a warm day prior to the time of uniting.

If colonies which occupy only three to five of the spaces between the combs on a frosty morning are not united, the chances of wintering can be greatly increased by cutting the winter chamber down to five or six combs, leaving the ones which contain the most honey. The remainder of the hive should then be filled with chaff division boards, or a tight-fitting division-board should be placed on each side and the space back of them filled with forest leaves or some other good packing material. By thus making the hive fit the cluster, it is often possible to winter these little colonies.

Winter Stores

Thousand of colonies of bees perish every winter because they run out of food. While a normal-sized colony may not consume more than 15 or 20 pounds during the winter proper, they need much more than that amount to carry them through the early spring. Many beekeepers now leave 40 to 50 pounds with the bees to be sure to have enough not only for winter, but also for spring brood rearing when honey is consumed rapidly. After a little experience, one can usually tell by lifting the hive whether the colony has enough honey for winter and spring, but a safer way for the beginner is to weigh the hive as it stands, then deduct the weight of the hives, combs, and bees.

To be on the safe side, a standard ten-frame hive with metal cover should weigh at least 68 to 70 pounds in order to be well provisioned for winter. If any weigh less, enough sugar syrup should be fed to bring the weight up at least to 68 pounds. If platform scales are not available for weighing the hives, the weight can be determined by hooking spring scales first under one end, then the other. The sum of the two readings thus obtained is approximately the correct weight. Those who provided each colony with a second story, either the shallow extracting super or the full-depth hive body, well filled with early honey, will not need to worry about feeding. Also those in localities where there has been a good fall honey flow should find their hives well provisioned for winter.

To make sugar syrup to supply a deficiency of stores, it requires as many pounds of dry sugar as the colony lacks in having enough stores. After weighing out the sugar, slightly more than half the same weight of water should be placed in a vessel and brought to the boiling point. The sugar is then stirred in and heat is applied until it is thoroughly dissolved. The syrup can be fed to the bees by placing it in a friction-top pail having 25 or 30 small nail holes punched in the cover. The pail is then inverted over the hole in the inner cover. If such a pail feeder is not at hand, the syrup can be fed by placing it in a large pan in an empty super placed between the brood-chamber and the bottom-board. The pan can be set upon something to raise it up close to the bottoms of the brood frames. The syrup should be covered with grass or some other material to provide a foothold for the bees.

In some localities, honey that is gathered late in the fall is of poor quality and the bees place this late-gathered honey where it will be used first during the winter. For this reason, some find it advisable to feed at least 10 pounds of sugar syrup late in October so that it will be placed below the honey stores and used first during the winter. If there is any question as to the quality of the stores, this is a good practice wherever bees are confined to their hives for long periods by cold weather.

Winter Protection

The final step in preparing bees for winter is that of providing adequate protection, either by means of a good windbreak and packed hives for outdoor win-

(Continued on page 636.)

Gleaned by Asking

Geo. S. Demuth

Honey Vinegar

Question.—I understand that good vinegar can be made from honey and would like to have a formula for making it, giving details. If vinegar can be made from honey, why is it that more is not so made?—E. E. Salge, Texas.

Answer.—Excellent vinegar can be made by diluting honey with water, then permitting it to go through the processes of alcoholic and acetic fermentation in much the same way that vinegar is made from cider. Five parts of water to one part of honey by weight is about the right strength to make good vinegar. Since such a solution does not contain sufficient mineral matter for the growth of the organisms causing fermentation, it is well to add certain minerals. A bulletin published by the Michigan Agricultural College on this subject recommends the following formula: Extracted honey, 40 to 45 pounds; water, 30 gallons; potassium tartrate, 2 ounces; ammonium phosphate, 2 ounces. The bulletin recommends that this solution be boiled for ten minutes in order to kill most of the micro-organisms which would later cause trouble, and to give the vinegar a better color. The process of alcoholic fermentation can be greatly hastened by adding a starter prepared from a pure yeast culture. The acetic fermentation can be hastened by adding "mother of vinegar." The bulletin mentioned above tells how to make these starters. It can probably be obtained from the Michigan Agricultural College, East Lansing, Michigan. It would be difficult for honey vinegar to compete in price with vinegar made from apple cider. However, a considerable amount is made by washing the cappings cut from combs to be extracted, then bringing the solution to proper strength by adding more honey if necessary, or by using off-grade honey.

Carrying Diseased Colonies Through Winter

Question.—I have treated about half of my colonies for foulbrood by shaking them on frames of foundation. Do you think it advisable to leave the rest in their present hives until spring, then shake into a clean hive with frames of foundation, and feed them at that time? Some of them are very strong at present. —James Middleton, New York.

Answer.—Assuming that this is American foulbrood, it would be dangerous to try to winter any of the colonies that have the disease. It is not advisable to treat all colonies when American foulbrood is found in the apiary. Only those colonies definitely diseased should be treated. Usually only a few colonies will be found to be diseased. Strong colonies having only a few cells of American foulbrood present quite a temptation to the beekeeper to carry them through the winter and treat them next spring. In such cases, the disease may spread throughout the hive with surprising rapidity early in the spring, and such colonies often die and are robbed out before the beekeeper gets around to examine them. The only safe thing to do when American foulbrood is present in the colonies in the fall is either to destroy or treat them at once. The risk is too great for any supposed advantage in holding them over.

Making Sugar Syrup for Winter Feed

Question.—Is it necessary to boil the syrup to cause the tartaric acid to invert the sugar in making feed for winter?—Iver C. Andersen, Minnesota.

Answer.—Since tartaric acid acts upon sugar only when heat is applied, it is necessary to bring the syrup to or near the boiling point in order to bring about inversion. In making sugar syrup for fall feeding to supply winter stores, only partial inversion is desirable—just enough to prevent crystallization while being fed. In handling the syrup from the feeder to the combs the bees add an inverting agent which acts upon the sugar in the syrup converting the sucrose into levulose and dextrose, the sugars of honey. Experiments conducted here several years ago indicate that this inversion in fed sugar syrup continues after the syrup has been stored in the combs, so that toward spring it is practically complete. The sugars in the syrup are then levulose and dextrose, instead of sucrose as at the beginning. As inversion nears completion, the dextrose is inclined to crystal out just as in the case of honey that is several months old. Therefore, the slower the process of inversion, the longer the syrup will remain liquid. If inversion of the sugar syrup is carried to completion before being fed, granulation will take place much earlier in the winter than if only partially inverted. Most beekeepers now prefer to make the syrup thin enough (slightly more than one part of water to two parts of sugar by weight) to prevent granulation while the syrup is being fed then depend upon the partial inversion brought about by the bees while handling the

syrup to prevent granulation during the winter.

Winter Stores All in Food-Chamber

Question.—Some of my colonies that have full-depth food-chambers have very little or no honey in the brood-chamber. Is this condition O. K. for winter?—Carl N. Holcomb, New York.

Answer.—If the food-chamber is well filled, it is not necessary that there be honey in the brood-chamber also. In that event, the cluster will form partly in each chamber. This has the advantage that the bees can move from comb to comb during the winter through the space between the two sets of combs.

Marketing Honey Without Inspection Certificate

Question.—My bees have not been inspected this year by state apiary inspectors. Can I sell my honey with my name on the carton without this inspection?—Michael Petoskey, Pennsylvania.

Answer.—As we understand it, your state does not require that the bees be inspected in order to be permitted to sell your honey with your name on the carton. A few states are attempting to enforce such an arrangement, but it is impossible to inspect all of the apiaries in any state at frequent enough intervals to carry out the plan. By doing your own inspection and keeping your apiary free from American foulbrood, you are protecting other beekeepers, and since the presence of American foulbrood in an apiary does not in any way injure honey as human food, the consuming public needs no such protection.

Bee Escape Works Slowly

Question.—According to the literature on the subject, bees are supposed to leave the supers in about 24 hours when using a bee-escape. However, in several trials I have found 48 hours the correct time allowance. Will not the bees open some of the cells in that time?—Donald A. Brady, New York.

Answer.—Sometimes bees are inclined to open some of the cells, but as a rule, there is but little if any trouble of this kind. Opening a few cells in extracting combs would do no harm, but in comb honey it would. However, the bulk of the crop of comb honey is usually taken off during the honey flow at which time the bees should leave the supers within twelve hours. When they are not active, as at the close of the honey flow or late in the season, they are extremely slow about leaving the supers through the bee-escape. When taking off comb honey under these conditions, it is often a good plan to take off the cover and smoke some of the bees down before placing the escape. This disturbance causes them to leave the supers usually within 12 hours, and certainly within 24 hours.

Finding and Destroying Evasive Queens

Question.—I have three colonies which I am attempting to requeen. For some reason I can not find the queen in one of them. Can you tell me some method by which she can be exterminated without locating her?—Marvin McClatchey, Jr., Georgia.

Answer.—Evasive queens can usually be found by the following method: Lift the hive from the bottom, place a hive-body containing a few empty combs in its place, then an excluder, then the brood-chamber containing the colony with the evasive queen. Blow smoke over the tops of the frames to start the bees down through the excluder, then take out the combs and shake the bees from each, shaking them back into this upper chamber. Place the combs in an extra brood-chamber as the bees are shaken from them. Smoke should be used as needed to keep the bees on the run down through the excluder. Finally, the queen should be found on the excluder trying to get through. After killing her, the now empty chamber may be taken off and the chamber containing the brood combs from which the bees were shaken put back as an upper story. Later, when the colony has settled down, the lower chamber can be taken away. Another way is to set the hive to one side, place an empty one in its stead with an entrance guard over the entrance, then take the combs from the original hive, one at a time, and shake the bees from them in front of the hive, each comb after being shaken being placed in its position in the new hive. After the bees have gone in, the queen should be found on the entrance guard attempting to pass through. Since the bees are slow about entering the hive when this is done, the queen, if small, might be able to pass through the excluder because she has more time. By the first described method, there is less danger of this because she has less time and is usually greatly excited. Inferior queens can often be eliminated without finding them by uniting a colony having a good queen with the colony having a poor queen. This is done by placing the brood-chamber containing the good queen to top of the chamber containing the inferior queen with a sheet of newspaper having a few pinholes punched through it, between. In this way, the colonies usually unite without fighting and the younger or better queen in the upper chamber usually survives while the one below is killed.

Just News

Editors

The newly-appointed state apiarist for Tennessee is Mr. Julian Allison, Department of Agriculture, Nashville, Tenn.

The Missouri State Beekeepers' Association will hold its annual business meeting on October 16 at the apiary of Mr. Irving E. Long, Marceline, Mo.

The name of C. F. Schad, Vermillion, Kansas, has been added to the list of honey receivers for the American Honey Institute, a complete list of which was published on page 442, July, 1933, issue of this journal.

Rev. Joseph G. Digges, founder and editor of the Irish Bee Journal and the Beekeepers' Gazette, and author of "Practical Bee Guide," died suddenly on Sunday, August 6, during a confirmation service in the church of which he was pastor.

California beekeepers have arranged for a camp meeting at Balboa Beach, California, beginning October 13, and to continue four days or more. Beekeepers are advised to bring their straw hats and bathing suits for a genuine frolic in the sunshine of southern California.

The annual meeting of the Iowa Beekeepers' Association will be held in conjunction with the annual short course for honey producers at Ames, Iowa, December 16, 17 and 18. The meetings are held in conjunction with the State Horticultural Society and affiliated organizations. Out-of-state speakers will assist in the program.

According to German newspapers, firemen of Berlin were called out hurriedly recently to free a professor of Berlin University from a swarm of bees that had alighted on his beard while he was sleeping in the shadows of the Zoological Gardens. The story relates that the firemen successfully removed the bees from the beard without the victim having been stung.

A recent order by the Interstate Commerce Commission reduces the freight rate on foods packed in glass in less than carload lots to make it the same as food packed in tin, east of the Mississippi and north of the Ohio Rivers. However, it is understood that these changes will be made throughout the United States by all the railroads effective this month. This will bring about quite a saving in the transportation of honey packed in glass.

Mr. Geo. A. Hummer, of Geo. A. Hummer & Son, producers and shippers of package bees and queens, died on September 6 at his home in Prairie Point, Miss. Mr. Hummer has been quite influential in the development of beekeeping in that state, having introduced modern hives and Italian bees, together with modern methods of honey production. He also introduced sweet clover into the prairie section and it has spread over large areas in that region. He shipped the first carload of honey ever shipped from his state. During the World War, Mr. Hummer acted as Extension Specialist in Beekeeping for the U. S. Government.

R. E. Lothrop and S. I. Gertler of the Bureau of Chemistry and Soils, Washington, D. C., recently announced a new product made of honey, a quick frozen desert. It is made by quickly freezing a solution of honey, about one part to two parts of water. It is frozen by means of solid carbon dioxide, which can usually be obtained at soda fountains or from ice cream manufacturers. The glass container is wrapped in a towel or napkin and a part of a spoonful of carbon dioxide is added, when the mixture is stirred vigously until of the desired consistency. The resulting product resembles sherbet in appearance and texture, and retains the delicate honey flavor.

An article in the August issue of the Journal of Chemical Education entitled "Levulose, the Sugar of the Future," by James H. McGlumphy and Jack W. Eichinger, Jr., sets forth an excellent case for levulose as a food. The authors point out that levulose is the sweetest of all sugars, that it is the most soluble of all sugars, and that it possesses certain properties making it more easily and quickly assimilated to supply the necessary energy for the human body. They even suggest making corn sugar more palatable by mixing it with levulose, thus raising its sweetening power. The authors might also have pointed out that honey is a natural mixture of dextrose and levulose, with levulose predominating, thus giving to honey much of the advantage of the levulose sugar.

Bees, Men and Things

(You may find it here)

"One of my colonies of bees stored 40 sections of honey in 43 days, this season. I have been wondering if these bees are of good strain."—F. Barras, Potter County, Pa.

"The Danish Beekeeping Association has set the price of extracted honey at 20 cents a pound. But I believe large quantities have been sold far below that price."—Louis Jensen, Denmark.

"The buckwheat honey crop is short, but we are getting a good honey flow from goldenrod. We had two swarms yesterday. How is that for September 7?"—M. H. Fairbanks, Cortland County, N. Y.

"Our city council has definitely postponed any action as to passing an ordinance to prohibit the keeping of bees within the city limits, thanks to the A B C and X Y Z of Bee Culture and your letter."—J. Howard Wagner, Merrick County, Nebr.

"I discovered a new wrinkle the other day, so will pass it along. Wishing to heat a 60-lb. can of honey, I picked up my wife's cold-pack canner and found the 60-lb. can would just fit into it."—M. R. Woodard, Franklin County, Ohio.

"The early honey flow in this section was very unsatisfactory. On July 4, however, good old basswood started to yield, even though the blossoms were half through, again restoring the possibilities of successful beekeeping here. We are only thirty miles north of New York City."—Herbert F. Kumpf, New York County.

"On August 6 I saw bees gathering nectar from alfalfa all day long. The alfalfa stand is about five years old and located in lowland. It is within three-quarters of a mile of my home. Bees here did not get much clover honey on account of dry weather."—L. H. Allis, Franklin County, Mass.

"The gentleman holding the swarm illustrated on page 492 of the August issue of Gleanings in Bee Culture is Mr. M. O'Keefe, of Halifax City, Nova Scotia, a printer by trade. He had never seen a swarm of bees until he drove into our bee yard about 60 miles from Halifax just as a swarm was issuing."—H. G. Payne, Nova Scotia.

"So far I have averaged 50 pounds per colony, and expect 25 pounds more of comb honey, and the best I ever got—nearly water clear. The first six months of this year were badly against the bees, but since July 1 we had a steady gentle rain which lasted 48 hours. It was a good, gentle, steady soaker."—S. C. Frederick, Cowlitz County, Wash.

"Honey prices are low here owing to outsiders selling from house to house. Last week I met a truck from Pennsylvania, one from West Virginia, and four from North Carolina. Each had a different price, ranging from 10 cents to 25 cents for a 16-ounce jar, 8 cents to 20 cents for comb, and 25 cents to 75 cents for a five-pound pail. How can we accomplish anything with such methods?"—B. F. Porter, Norfolk County, Va.

"Regarding the problem of what to do with the unsown wheat and cotton acreage, how about urging that this land be sown in sweet clover and allowed to stand uncut until the land can be used for its regular intent. Besides putting nitrogen into the soil it would prevent erosion while the land is idle, and at the same time benefit beekeepers."—Harold L. Kelly, Montgomery County, Md.

"Some of the old-time beekeepers here have peculiar superstitious ideas about beekeeping. They think that it is bad luck to tell how many colonies they have. In fact, if you ask, they will tell you they don't know. Some keep a few empty hives in the yard to keep visitors from counting their colonies correctly. Also some believe that it will bring ill luck to sell bees. Some advise cutting out all the honey in March, saying that if the beekeeper does not, the bees will carry it out."—Dillo Sanders, Perry County, Kentucky.

"Last spring I rented all of my bees to two large orchards for pollination. I moved them to and from the orchards by truck. A few Italian bees came back home the next day after moving a distance of three or four miles. They stored lots of nectar from apple blossoms, and prepared to swarm before I brought them home. A few colonies stored a little surplus. The honey crop this season hasn't been very good, although much better than last year. Most of our surplus was stored in July."—Frank Derrenbacker, Buckingham County, Va.

Sell and Buy Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate—7 cents per counted word each insertion. Copy should be in the 15th of month preceding.

HONEY FOR SALE

We do not guarantee the reliability of honey sellers, although we require strict references from them.

NEW clover honey, in new 60-lb. cans. Ray C. Hiltner, Continental, Ohio.

NEW crop clover honey in new sixties. D. R. Townsend, Northstar, Mich.

CHOICE Michigan clover honey, new 60's. David Running, Filion, Mich.

FOR SALE—Extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

AMBER honey in barrels. Sample, 6c. Peter W. Sowinski, Fort Pierce, Florida.

CLOVER, basswood, buckwheat and mixed extracted and comb. F. W. Lesser, Fayetteville, N. Y.

NEW crop clover, amber or buckwheat honey; comb or extracted. C. B. Howard, Geneva, N. Y.

NEW YORK clover honey, new 60-lb. cans; case lots, 7c; ton lots, 6½c. H. B. Gable, Romulus, N. Y.

OHIO'S finest extracted white clover honey. Prices on request. Sample, 15c. Geo. Morrison, Cloverdale, Ohio.

FOR SALE—White clover honey in 60-lb. cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

WATER white comb and extracted clover honey. Superb quality. Priced right. Howard Grimble, Holcomb, N. Y.

CLOVER honey, choice, ripened on bees. Satisfaction guaranteed. Case or quantity. E. J. Stahlman, Grover Hill, Ohio.

PENNSYLVANIA'S finest buckwheat, goldenrod or aster honey; comb or extracted. White Pine Bee Farms, Rockton, Pa.

NOW on hand, new crop clover honey, case to carload, in new 60-lb. cans and cases, or in any way you wish put up. Sample free. W. S. Earls & Son, New Canton, Ill.

HONEY—We sell the best. Combs in carriers of eight cases each; extracted, basswood, buckwheat, sweet clover, white clover and light amber. A. I. Root Co. of Chicago, 224 West Huron St., Chicago, Ill.

NEW YORK State comb and extracted honey, buckwheat and clover, any quantity, all size packages. Five-pound pails my specialty. Edward T. Cary, Midland Ave. and Tallman St., Syracuse, N. Y.

FOR SALE—Well ripened white sweet clover honey. Don't let your customers be without honey. The stock we furnish will please them. Write today for prices. Colorado Honey Producers' Association, Denver, Colo.

STOLLER'S excellent quality clover honey, comb, cut comb and extracted. White stock, unexcelled. Write Stoller Apiaries, Latty, Ohio.

FINE HONEY, packed to suit you. Ray C. Wilcox, Odessa, N. Y.

FIVE 120-lb. cases clover honey, $7.20 each, f. o. b. Arthur Clough, Donnellson, Ill.

BUCKWHEAT in sixties, 5c lb. Sample, 15c. No stamps. Dan. Gilmore, Phalanx, Ohio.

WHITE clover extracted honey, sample 15c in stamps. Kalona Honey Co., Kalona, Iowa.

SWEET clover honey in new 60's. Write for sample and prices. Alfred Soder, Stratford, Iowa.

ORANGE, palmetto and mango honey. Sample, 10c. E. F. Hancock, Box 432, Ft. Pierce, Florida.

EXTRACTED clover, light amber and buckwheat at market price. C. J. Baldridge, Kendaia, N. Y.

GOLDENROD in sixties, 5½c lb. Goldenrod comb, $2.50 per case of 24 sections. Otto Hurd, Phalanx, Ohio.

1933 crop white clover honey in sixties. Write for prices. Sample, 10c. Meyer Toom, Knoxville, Iowa, Route 4.

DELICIOUS clover extracted honey, case or car lot. Amber, 4½c; white, 5c. John Burghardt, Grand Island, Nebr.

WHITE clover comb chunk honey, dozen 5-lb. pails, $5.80; 60-lb. can extracted, 7½c lb. F. L. Barber, Lowville, New York.

HONEY FOR SALE—It will be to your advantage to communicate with me before buying your next lot. Thos. D. Sherfick, Shoals, Ind.

NEW crop white clover extracted honey in new 60-lb. cans. State how much you need. Leonard S. Griggs, 711 Avon St., Flint, Mich.

HONEY for sale at my home, 1000 sections white comb; 1000 lbs. white extracted 60's. E. A. Leffingwell, 1010 N. Pine St., Lansing, Michigan.

FOR SALE—Choice clover extracted honey at 6c; buckwheat and fall flower honey at 5c. New 60-pound cans and cases. Valley View Apiaries, Savanna, Ill.

NEW CROP SHALLOW FRAME COMB HONEY, also section honey, nice white stock, securely packed, available for shipment now. Colorado Honey Producers' Asso., Denver, Colo.

HOWDY'S HONEY—White, clover extracted. New sixties, 6c per pound by carlot; 6½c for less; f. o. b. Ithaca. Sample free. Howard Potter, Ithaca, Michigan, or 72 Perkins Hall, Cambridge, Mass.

EXTRACTED in new 60's, clover, 7c; buckwheat, 5c per lb.; comb No. 1 white, $2.75; fancy buckwheat, $2.50; No. 1 amber, buckwheat or mixed, $2.25 per case. Wrappers or cartons, 25c extra. Walter A. Wood, Naples, N. Y.

A LIMITED quantity of best Michigan clover extracted honey for October delivery at 6c per pound, on track. A ton or two amber for baking or candy making, at 60c per gallon. New cans and cases. E. D. Townsend & Sons, Northstar, Michigan.

WHITE clover extracted honey. S. W. Markestad, Canton, Minnesota.

FOR SALE—Comb honey. White clover, also buckwheat. C. Holm, Genoa, Ill.

LIGHT amber goldenrod honey at 7c. The Vlk Apiaries, Independence, Ohio.

MICHIGAN white extracted honey in 60's. M. H. Hunt & Son, Lansing, Mich.

AMBER and buckwheat honey in new 60-lb. cans. Harry T. Gable, Romulus, N. Y.

LIGHT amber extracted, 5½c, case lots. Ten cases, 5c. A. J. Wilson, Hammond, N. Y.

OAKVALE APIARIES—New clover comb honey. Forrest Dygert, Hammond, N. Y.

FINEST clover honey, 6¾c, new sixties. Sample, 10c. C. P. Jankowski, Gurnee, Illinois.

CHOICE clover honey in 60's, case, $7.20. Sample, 10c. Wm. J. Martin, Croswell, Mich.

FINEST quality white clover-alsike comb and extracted honey. Edwin Krinke, Bay City, Wis.

WHITE comb, $2.50 case; light clover extracted, 4¾c lb. John Sueper, Grand Island, Nebr.

FOR SALE—Extracted honey. 200 glass-front wooden cases. L. M. Hubbard, Onsted, Mich.

HONEY—New crop clover, amber and buckwheat, both comb and extracted. F. J. Smith, Castalia, Ohio.

GOOD quality light and amber extracted honey in 60-lb. cans, 6c per lb. F. O. B. Roaring Branch, Pa. David Conn.

EXTRA FINE white sweet clover honey at 6c in new sixties. Chas. S. Engle, 1610 4th Ave. South, Fargo, North Dakota.

WATER-WHITE, white and sweet clover honey; also light amber at 5c and 4½c. New cans. Martin Carsmoe, Ruthven, Iowa.

FOR SALE—Finest quality white clover honey at 6c; amber, 5c. Order by case 120 lbs. Samples, 10c each. W. J. Manley, Sandusky, Mich.

COMB HONEY—White, amber and buckwheat. Also white and buckwheat extracted. Any size package. Prices on request. Carlton D. Howard, Ovid, N. Y.

WRITE for prices on our new crop clover extracted and comb honey; also buckwheat and goldenrod extracted and comb honey. H. E. Crowther, Jefferson, Ohio.

RASPBERRY HONEY—In 60-lb. cans, for $6.00 a can. In 10-lb. cans by mail, postpaid up to and including forth zone, for $2.00 a can. Sample by mail, 20c. Elmer Hutchinson & Son, Lake City, Mich.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTE—We will not guarantee any honey buyer's financial responsibility and advise all beekeepers to sell for cash only or on C. O. D. terms except when the buyer has thoroughly established his credit with the sellers.

WANTED—Honey. White clover, light amber in 60-lb. cans. Roscoe F. Wixson, Dundee, New York.

WANTED—Comb and extracted honey. Mail sample, state quantity and price. Sherfick Farms, Shoals, Ind.

250 CASES U. S. fancy, white, clover comb honey. Howard Potter, 72 Perkins Hall, Cambridge, Mass.

WANTED—White clover extracted honey. New cans only. Cash on arrival. Clover-Blossom Honey Co., Columbus, Ohio.

CARLOAD or less comb and extracted honey. Mail samples and delivered price. C. W. Aeppler Company, Oconomowoc, Wisconsin.

WANTED—Honey and beeswax. Beekeepers will find it to their advantage to communicate with us. Please send samples, state quantity available and prices. California Honey Company, Hamilton & Company, Agent, 108 W. Sixth Street, Los Angeles, California.

FOR SALE

SAVE queens. Safin cages now 15c; ten for $1. Allen Latham, Norwichtown, Conn.

PATENTED wire-bound beehive insulators. Sold only by Standard Bee Specialty Co., Box 392-A, Eau Claire, Wis.

BEST quality bee supplies, attractive prices, prompt shipment. Illustrated catalog upon request. We take beeswax in trade for bee supplies. The Colorado Honey Producers' Assoc., Denver, Colo.

FOR SALE — Fine quality queen-mailing cages; Root quality bee supplies; both comb and extracted honey. Orders filled promptly. Write us or drive over M53, fifty miles north of Detroit. Hamilton Bee Supply Co., Almont, Mich.

ELECTRICAL honeycomb uncapping knife, 10-inch thermostatic heat control, 180° F. lowest, 205° F. highest heat, cost 2c a day to operate. Price, $11.50. When ordering state your voltage, 110-volt or 120-volt. Paul Krebs, 8000 Fulton Ave., Detroit, Mich.

BEE SUPPLY SPECIALTIES

METAL EYELETS in your frames will stop the WIRE SAG which is responsible for most SAGGED COMBS. METAL EYELETS, per 1000, 60c. Handy tool for inserting eyelets, 25c. Superior Honey Co., Ogden, Utah.

BEES AND QUEENS FOR SALE

WHOLE colonies of bees, if advertised for sale in these columns, must either be guaranteed free from disease, or, if not so guaranteed, the exact condition of the bees and the conditions of sale must be clearly stated in the advertisement; or, it will be satisfactory if the advertiser will agree to furnish a certificate of health from some authorized bee inspector at time of sale.

QUEENS, 25c, 5 for $1.00. Highest grade, fine three-banded Italians. G. H. Merrill, Greenville, S. C.

WINTER QUEENS—Untested, before Oct. 15, 3 for $1.00. Tested, 65c each, all winter. D. W. Howell, Shellman, Georgia.

ITALIAN queens, 30c each. We will take wax at 15c per pound delivered in trade for queens. Cloverland Apiaries, Hamburg, La.

FOR SALE—23 colonies Italian bees and equipment for comb and extracted honey. Guaranteed free from disease. C. B. Waters, 415 Carrier St., Grand Rapids, Mich.

QUEENS, QUEENS—Pure bred Italians, 40c each; tested, 80c each. They are sure to please you. Quality, service, complete satisaction assured. Let us supply your needs. Honey Bee Apiaries, Sandwich, Ill.

GOOD QUEENS for summer and fall requeening. Gentle, productive, three-banded Italians. The kind you like to work with. Select young laying queens, 35c each; three, $1.00; ten or more, 30c each. Prompt shipment. Safe arrival guaranteed. Accredited by the Alabama Department of Agriculture. H. C. Short, Fitzpatrick, Ala.

HIGH bred Caucasians for October, untested queens, 50c each; tested, $1.50 each; select tested, $2.50 each. Bolling Bee Co., Bolling, Alabama.

SITUATION WANTED

SITUATION WANTED—Young experienced beekeeper wants any kind of work. Age 20, single, good typist and bookkeeper. Will work for room, board and clothing. Reuben David, Monona, Iowa.

MISCELLANEOUS

GENERAL JOB printing done by A. Matson, 21513 Donaldson, Dearborn, Mich.

BEEKEEPERS—Improve sources of nectar by planting vitex trees, or seed. Two-year-old trees, 40c; one-year-old trees, 25c. New tested seed at $1.00 per ounce. All prepaid. Joe Stallsmith, Galena, Kansas.

ANNUAL report American Honey Producers' League, including 14 papers and complete discussion of 1932 convention for $1.00 membership included. Address V. G. Milum, Vivarium Building, Champaign, Illinois.

NOTICE

Professor H. F. Wilson, University Station, Madison, Wisconsin, has taken charge of the entire Honey Receivers' Organization. Kindly send all names of new honey receivers to him in the future.

TOLD BY THE JAY

(Continued from page 610.)

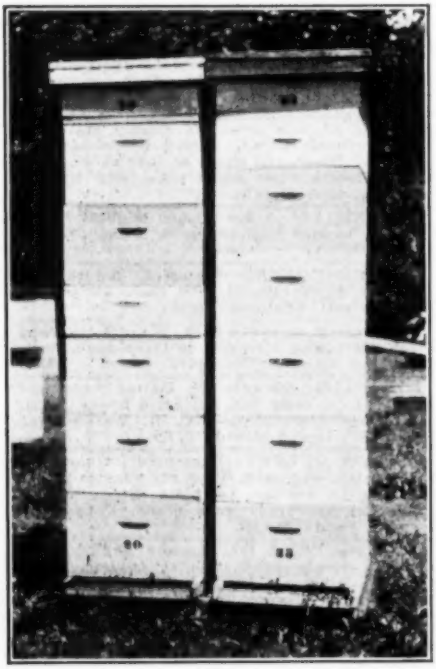
proof that he is a bad dog, and you are thereafter responsible when he bites some one. Now if a dog is entitled to one bite surely a bee is entitled to one sting, and as that sting renders it incapable of a second offense you are sure to win the case. Be sure in case you take my advice and keep bumble bees that they are where they can not sting the neighbors for they can become old offenders. I know this to be true from an experience I had when a boy when a bumble bee crawled up my trousers and committed his forty-second offense before crawling out the collar of my shirt.

TALKS TO BEGINNERS

(Continued from page 629.)

tering, or by carrying the bees into a cellar. If the colonies are in double-walled hives, all that is necessary is to see that the chaff tray is properly filled with packing material and that the packing is carefully pressed down against the water table to prevent air currents under it, and reducing the entrance by means of the

(Continued on page 637.)



Increase Your Profits

by requeening with our large, yellow gentle bees. Joseph M. Barr, the well known beekeeper of West Allis, Wis., sends me this photo and writes, "These two colonies with queens of your stock made me very happy." And why not? You will be happy, too, if you use our stock for you want big crops from bees that are gentle—bees that you can with pride show to your visitors. I have worked for hours with our mating hives, taking out queens using no **veil or smoke** without getting a single sting! Queens introduced any time before November will be at their best next season. We can ship promptly. Write for our free book, "About Bees," which is a brief treatise on beekeeping.

Prices: Untested, $1.00. Five, $4.75; ten, $9.00; one hundred, $75.00.

Tested, $2.00. Breeders, $7.50.

We accept honey in exchange for queens. Write for particulars.

Jay Smith

Route Three **Vincennes, Indiana**

TALKS TO BEGINNERS

(Continued from page 636.)

entrance-closer. An opening ⅜" by 2" is usually large enough in cold weather and sometimes even a smaller entrance is advisable.

Single-walled hives should be surrounded by some good dry packing material, such as forest leaves, dry planer shavings or wheat chaff. For holding the packing material in place, some use a box large enough to provide a space of two to six inches between the hive and the box, and six or eight inches on top for packing material. A bridge must be arranged to connect the entrance with the outside so the bees can fly on fine days during the winter. If a suitable box is not at hand, building paper can be used to hold the packing in place, as described on page 587 in this issue.

Many beginners carry their hives of bees into a barn or shed for winter, thinking that this will afford the protection needed. This usually results in the death of the colonies. The hives should be left on their summer stands where they will have the benefit of the sun. The only exception is when they are wintered in a frost-proof cellar where a nearly constant temperature can be maintained throughout the winter. As a rule, beginners are more successful with outdoor wintering.

FOOD DEPARTMENT

(Continued from page 627.)

to give to the women who attended her classes during that week.

If it is possible to make a house-to-house canvass during National Honey Week, it would be well to leave or give the homemaker a special card American Honey Institute has had printed. This card gives the homemaker two honey recipes and tells her how to secure over 200 tested honey recipes if she is interested in using honey. These cards will cost 40 cents for 100, $1.60 for 500, or $3.00 for 1000. The distribution of these cards will interest the homemaker in using more honey. If you don't carry on a "push-the-doorbell campaign" these cards would be welcomed by your grocer or baker or druggist for distribution at his shop.

Then American Honey Institute is having printed a special folder type of leaflet. This leaflet will contain popular honey recipes and give the homemaker simple rules for using honey, smart ways to serve honey, and sure recipes for attractive honey food combinations. There'll be a limited number of these available for resale purposes. The rule of first come first served will have to be followed and preference of course given to members. These leaflets (this is the first time the Institute has had a color leaflet) will be available at the following prices: Lots of 100, 60 cents; lots of 500, $2.30; lots of 1000,

(Continued on page 638.)

4 Queens for $1.00

OUR QUEENS ARE BETTER THAN EVER

Through August, September, and October we will offer Select Untested Three-Banded Italian queens at 25c each, any amount. Our queens are guaranteed in every way to be good and are especially guaranteed against supersedure for one season.

The Crowville Apiaries

Winnsboro, Rt. 1, La.

We are Cash Buyers of Honey and Beeswax
Submit samples and best prices, freight prepaid Cincinnati
We also furnish cans and cases.
The Fred. W. Muth Co. PEARL & WALNUT CINCINNATI, O.

Carniolans--Caucasians

Gentle, prolific, good winterers, build up rapidly during the spring, wonderful workers. A few queens left, both races at 50c each, $5.00 per doz. Not too late to replace poor or failing queens.

ALBERT G. HANN, GLEN GARDNER, N. J.

QUEENS 25c Ea. **"Diamond"** BRIGHT ITALIANS **QUEENS Ea. 25c**

HEALTH CERTIFICATES FURNISHED. SERVICE AND QUALITY GUARANTEED.

GARON BEE COMPANY, DONALDSONVILLE, LA.

Moore's Strain

Leather Colored Italian Queens
Superior Stock

50c Each

World-wide reputation for honey-gathering, hardiness, gentleness, etc., since 1879. Safe arrival and satisfaction guaranteed. Circular free.

J. P. Moore

MORGAN KENTUCKY

York's Bees & Queens

ARE BRED FOR BUSINESS

Return mail service on queens in small or large quantites.

Untested Italian queens, 75c each; 3 for $2.00; 10 for $6.50, or $50.00 per 100.

Package bees in season, write us.

Lewis Beeware and Dadant's Foundation at Catalog Prices.

York Bee Co., Jesup, Ga.
The Universal Apiaries

QUEENS QUEENS

SELECTED WARRANTED
PURELY MATED

Final 1933 Clean Up Price,
Only 25c Each.

SAFE ARRIVAL AND ENTIRE SATISFACTION WE GUARANTEE.

Thirty-nine years of careful breeding gives us a strain of pure three-banded Italian bees unsurpassed for disease resistance and honey production. They are gentle, too.

M. C. BERRY & CO.
BOX 684. MONTGOMERY, ALA.

FOOD DEPARTMENT

(Continued from page 637.)

$4.15. All prices are f. o. b. Madison office. A sample will be sent free upon request. There is plenty of space on one side of the leaflet for the beekeeper or the bottler to stamp his name, address and trade mark if desired.

Offering premiums during National Honey Week would do much to interest homemakers. The premium might be a rubber spatula, a pair of pure beeswax candles, a honey drizzler or some piece of handy kitchen equipment as measuring spoons, measuring cups, pan holders, etc. You might offer to give a premium for the return of so many of your pail labels or something of that nature just as a special for National Honey Week.

Plans Should be Made Now

But no matter which of the programs you decide on, whether one or four of them, just remember to start your plans at once. Every bit of activity contributes to the success of the whole program. If National Honey Week can be observed as extensively this year as it was last year, we will have prepared the way for the marketing of future bumper crops.

I know it's hard to be enthusiastic this year if you didn't get a good surplus, but carry on, anyway. Your chance is not so far distant on that bumper crop, and if you do your bit this year in developing the honey market, it will be just that much easier for you to handle the marketing of that bumper crop when you do get it. It's the future of the beekeeping industry we are planning for, and one of the best ways to establish that future so that it includes all our plans is to observe National Honey Week.

Remember the dates, November 13 to 18.

Quality Italian Queens

For October, 25c, any number.

Try late requeening. It pays well. Every queen mated and guaranteed to be good.

MERRILL BEE CO., BUCKATUNNA, MISS.
Mississippi's Oldest Shippers.

Wanted Fancy White Comb Honey

Not Wrapped but in Glass-Front Wood Cases
State best price Frt. Paid Cincinnati, O.

THE FRED. W. MUTH CO.

You are never far from an Institute Honey Receiver

IT CAN BE DONE

C. S. Engle, North Dakota (upper left), Russell Kelty, Michigan A. C. Apiculturist (lower right), Mr. and Mrs. David Running, Mr. and Mrs. Oscar Schmidt, Michigan, and W. F. Straub, Chicago (center).

Any state can do what Michigan and North Dakota have done to support the Institute, but it takes leadership! When D. D. Stover announced the winners of his contest, C. S. Engle of North Dakota was $60 to the good and showed his leadership by turning the entire amount over for Institute support. J. D. Beals, North Dakota, lost his big crop and honey house through fire, but contributed heavily.

David Running led the Michigan 1933 contributions with $80 cash, and Oscar Schmidt with a full ton of honey. Michigan has for three straight years topped the list of Institute contributors, and again pledged over $500 at their field meet this summer.

Continuation of the Institute's fine work to increase the wider use of honey can be assured with such leadership. It may be done if each state will choose someone to get behind this job.

Get ready for National Honey Week—November 13-18, by writing the Institute for a program of suggested co-operation.

AMERICAN HONEY INSTITUTE

417 N. Few Street, Madison, Wisconsin

KNIGHT'S

Dependable Queens

are now

30c Each

NO CHARGE FOR CLIPPING

LINE-BRED THREE-BANDED LEATHER-COLORED ITALIANS. ACCREDITED AND CERTIFIED BY ALABAMA DEPARTMENT OF AGRICULTURE.

They clean up European foul-brood, and are the best winterers as well as the best honey-gatherers.

JASPER KNIGHT, Hayneville, Ala.

CITRONELLE

Queens & Bees

Requeen with the finest 3-banded genuine Italians.

1 to 50 .....30c each
50 to 100 .....25c each
100 over .....20c each

Prepaid to you.

Prompt shipments.

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Citronelle Bee Co., Inc.
Citronelle, Alabama

Wanted Amber Extracted Honey
Send Samples and best price Frt. Paid to Cincinnati, O.
THE FRED. W. MUTH CO.

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